



RESEARCH METHODS IN PSYCHOLOGY

AP PSYCHOLOGY

@LOOSLILEARNING



01 Perspectives in Psychology

02 The Fundamentals of Psychological Research

03 Exploring Descriptive Research Methods

04 Understanding Correlational Research Methods

05 Techniques in Experimental Psychology

06 Statistical Analysis Techniques in Psychology

07 Ethical Guidelines in Psychological Research

08

09

10

Unit Terminology (Science Practices)

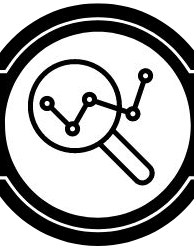
- | | | |
|--|---|---|
| ☐ Psychodynamic Perspective | ☐ Falsifiable | ☐ Naturalistic Observation |
| ☐ Behavioral Perspective | ☐ Peer Review | ☐ Case Study |
| ☐ Humanistic Perspective | ☐ Replication | ☐ Correlational Research |
| ☐ Cognitive Perspective | ☐ Reliability | ☐ Third Variable Problem |
| ☐ Biological Perspective | ☐ Validity | ☐ Scatterplot |
| ☐ Evolutionary Perspective | ☐ The American Psychological Association (APA) | ☐ Correlation Coefficient |
| ☐ Sociocultural Perspective | ☐ Research Design | ☐ Positive Correlation |
| ☐ Biopsychosocial Perspective | ☐ Methodology | ☐ Negative Correlation |
| ☐ Psychology | ☐ Quantitative Data | ☐ Experimental Method |
| ☐ Mental Processes | ☐ Qualitative Data | ☐ Independent Variable |
| ☐ Behavior | ☐ Likert Scales | ☐ Dependent Variable |
| ☐ Confirmation Bias | ☐ Structured Interviews | ☐ Confounding Variable |
| ☐ Hindsight Bias | ☐ Survey Technique | ☐ Operational Definitions |
| ☐ Overconfidence | ☐ Wording Effect | ☐ Experimental Group |
| ☐ Empirical Evidence | ☐ Social Desirability Bias | ☐ Control Group |
| ☐ Scientific Method | | ☐ Random Assignment |
| ☐ Hypothesis | | ☐ Placebo Effect |

Unit Terminology (Science Practices)

- | | | |
|--|--|--|
| ☐ Experimenter Bias | ☐ Range | ☐ Deception |
| ☐ Single-Blind Study | ☐ Normal Curve | ☐ Confederates |
| ☐ Double-Blind Study | ☐ Regression to the Mean | ☐ Debriefing |
| ☐ Placebo Condition | ☐ Positive Skew | ☐ Article Analysis Question (AAQ) |
| ☐ Sample | ☐ Negative Skew | ☐ Evidence-Based Question (EBQ) |
| ☐ Representative Sample | ☐ Standard Deviation | ☐ Defensible Claim |
| ☐ Random Sample | ☐ Percentile Rank | |
| ☐ Sample Bias | ☐ Bimodal Distribution | |
| ☐ Generalizability | ☐ Statistical Significance | |
| ☐ Statistics | ☐ Effect Sizes | |
| ☐ Descriptive Statistics | ☐ Meta Analysis | |
| ☐ Inferential Statistics | ☐ Institutional Review Boards (IRB) | |
| ☐ Measure of Central Tendency | ☐ Informed Consent | |
| ☐ Mean | ☐ Informed Assent | |
| ☐ Median | ☐ Confidentiality | |
| ☐ Mode | | |

PERSPECTIVES IN PSYCHOLOGY

ap psychology

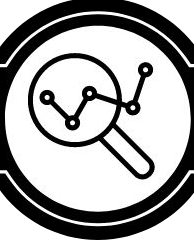


PERSPECTIVES IN PSYCHOLOGY

Perspectives in Psychology

Perspectives in psychology are different ways of understanding and explaining human behavior and mental processes.

- Psychology is the scientific study of *mental processes* and *behavior*.



PERSPECTIVES IN PSYCHOLOGY

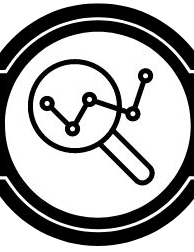
Perspectives in Psychology Perspectives in psychology are different ways of understanding and explaining human behavior and mental processes.

- Use the reading linked below to learn about the different perspectives in psychology:

Student Perspective Reading:

https://docs.google.com/presentation/d/13Hq5CzzVpuBRsejBu6WtmbdmZ6Bs46RW3g_xU92c5rQ/edit?usp=sharing

- they are also explained on the next slide, but the reading provides more detail



PERSPECTIVES IN PSYCHOLOGY

Psychodynamic: Explores how **unconscious** drives, conflicts, and childhood experiences shape behavior.

Behaviorism: Focuses on **observable behaviors** and the ways they're learned through interaction with the **environment**.

Humanistic: Emphasizes personal **growth**, free will, and the concept of self-actualization.

Cognitive: Examines internal **mental processes** such as thinking, memory, and problem-solving.

Biological: Studies the **physiological bases** of behavior in humans and animals.

Evolutionary: Considers how behavior and mental processes serve as adaptations for **survival and reproduction**.

Sociocultural: Analyzes how **culture, social norms**, and social environments influence behavior.

Biopsychosocial: **Combines** biological, psychological, and social factors to provide a comprehensive understanding of human behavior

PSYCH FINGERS PERSPECTIVES MNEMONIC

Pinky Finger: Biological

Ring Finger: Humanism

Middle Finger: Behaviorism

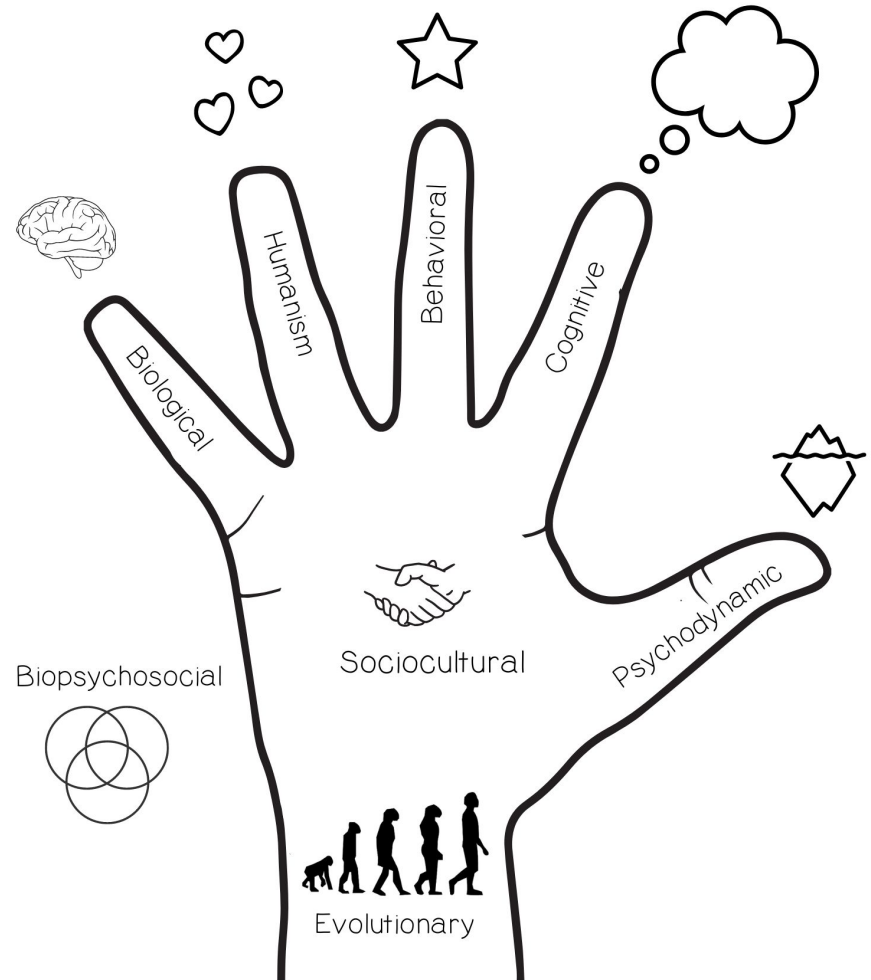
Index Finger: Cognitive

Thumb: Psychodynamic

Open Palm: Socio-Cultural

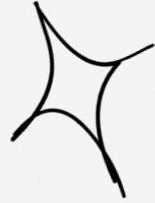
Wrist Bone: Evolutionary

Multiple Fingers: Biopsychosocial

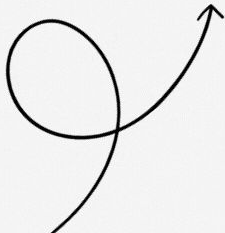


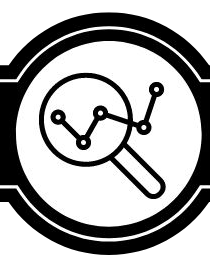
THE FUNDAMENTALS OF PSYCHOLOGICAL RESEARCH

ap psychology



The science practices and skills are central to
the study and practice of psychology.
Students should develop and apply the described
skills on a regular basis over the span of the
course.





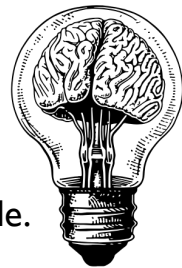
THE FUNDAMENTALS OF PSYCHOLOGICAL RESEARCH

Psychology is the scientific study of *mental processes* and *behavior*.

Mental Processes

These are like the "**thinking**" parts of our brain.

It's everything happening inside our heads that we can't see from the outside.



Behavior

This is **what we do** and how we act.

It's all the things we can see people do on the outside.

Brain imaging studies investigating neural correlates of addiction.

The influence of social media on self-esteem and body image.

Long-term effects of early childhood trauma on adult mental health.

The effects of meditation on attention and memory.

Examining the impact of music genres on mood regulation and emotional well-being in adolescents.

Assessing the psychological benefits of participating in team sports, such as increased self-confidence and resilience.

Investigating the factors contributing to happiness and life satisfaction.

Examining eyewitness testimony accuracy and factors influencing memory recall in legal contexts.

Examining the effects of media exposure on children's social development and behavior.

Exploring the psychology of brand loyalty and brand attachment in consumer preferences.

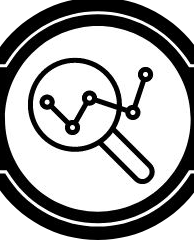
Examining the psychological benefits of VR exposure therapy for treating phobias and anxiety disorders.

Assessing the effectiveness of smartphone apps for delivering cognitive-behavioral therapy (CBT) and mindfulness-based interventions for anxiety and depression.

Examining the psychological consequences of natural disasters such as hurricanes, earthquakes, and wildfires on survivors' mental health and well-being.

Possible Research Topics in Psychology





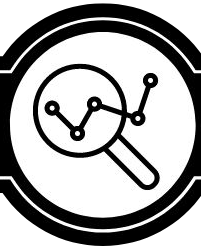
THE FUNDAMENTALS OF PSYCHOLOGICAL RESEARCH

Cognitive biases can distort our thinking and lead to incorrect conclusions.

- **Confirmation bias**, people tend to look for, interpret, or remember information in a way that *confirms* what they already believe.



Consider a student who strongly believes that eating chocolate before a test improves their performance. They recall instances where they ate chocolate and did well on tests, **but conveniently overlook occasions when they didn't perform as well despite consuming chocolate.** Seeking validation for their belief, they selectively gather feedback from classmates who have and haven't tried eating chocolate before tests. By seeking only confirming evidence and disregarding contradictory experiences, they inadvertently reinforce their biased belief in the effectiveness of chocolate consumption before exams.



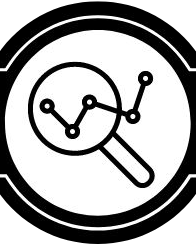
THE FUNDAMENTALS OF PSYCHOLOGICAL RESEARCH

Cognitive biases can distort our thinking and lead to incorrect conclusions.

- **Hindsight bias**, people believe that *they knew something was going to happen* after it has already occurred, even if they didn't actually predict it beforehand.



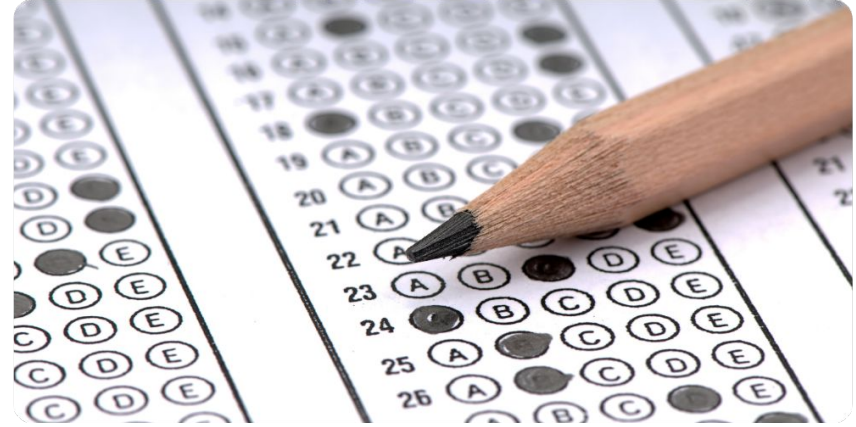
Suppose a group of friends is discussing a recent basketball game. One friend confidently asserts that they knew the winning team would emerge victorious because they're always right about sports predictions. Reflecting on past games, **they recall instances where they correctly predicted outcomes and conveniently overlook occasions when they were mistaken.**



THE FUNDAMENTALS OF PSYCHOLOGICAL RESEARCH

Cognitive biases can distort our thinking and lead to incorrect conclusions.

- **Overconfidence**, when people have too much faith in their own judgments or abilities, *thinking they know more than they actually do*.



Imagine a student who feels **excessively confident in their ability to perform well on an upcoming exam without studying**. They rely solely on their intuition and past successes, presuming they'll excel based on their perceived intelligence. Despite feedback on a previous exam that didn't meet their expectations, they remain steadfast in their belief of their academic prowess. It's only after repeated failures and setbacks that they reluctantly acknowledge the limitations of their overconfidence.

"Opposites attract in relationships."

"We only use 10% of our brain."

"Men are better at math than women."

"Introverts are shy and extroverts are outgoing."

"Multitasking makes you more productive."

"Dreams have specific meanings or predictions."

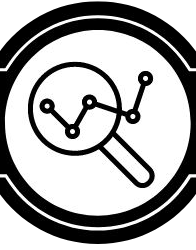
"Watching violent movies or playing violent video games leads
to real-life aggression."

"People's personalities are fixed and cannot change over
time."

"Talking about suicide with someone who is depressed will
make them more likely to attempt it."

These claims often stem from common misconceptions, stereotypes, or anecdotal evidence, rather than rigorous scientific research. It's important to critically evaluate such claims and **seek out evidence-based information** before accepting them as true.





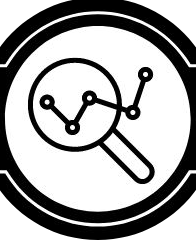
THE FUNDAMENTALS OF PSYCHOLOGICAL RESEARCH

Empirical evidence refers to information that is obtained through *observation*, *experimentation*, or *measurement*.

- Empirical evidence helps *prevent* cognitive bias by providing objective data that can counteract our natural tendencies to make biased judgments or decisions.



A survey assessing smartphone usage and sleep patterns: Researchers distribute surveys to a sample of individuals, asking about their smartphone usage before bedtime and their quality of sleep. **By analyzing survey responses and correlating smartphone usage with sleep patterns**, psychologists can gather empirical evidence of the relationship between screen time and sleep quality.

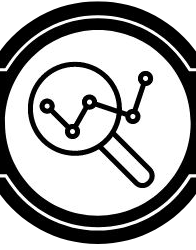


THE FUNDAMENTALS OF PSYCHOLOGICAL RESEARCH

Psychology is considered a science because it uses the same **scientific method** as other sciences.

- By applying the scientific method, psychologists can *generate* empirical evidence, test hypotheses, and develop theories that are grounded in objective observation and analysis.





THE FUNDAMENTALS OF PSYCHOLOGICAL RESEARCH

The Scientific Method in psychology is a *systematic approach* used to study human behavior and mental processes.

- The method involves making observations, forming hypotheses, conducting experiments or studies, analyzing data, and drawing conclusions based on evidence.

Observations/Research Question

Formulate Hypothesis

Design Experiment

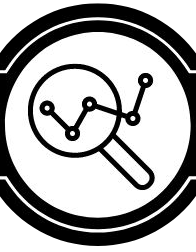
Collect Data

Analyze Data

Draw Conclusions

Communicate Results





THE FUNDAMENTALS OF PSYCHOLOGICAL RESEARCH

Hypothesis in psychology is a *specific, testable prediction* or educated guess about the relationship between variables or the outcome of a research study.

- It is based on existing theories, observations, or previous research findings.

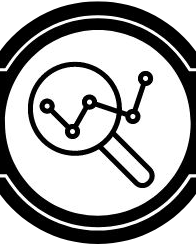
Hypothesis: "Individuals who engage in mindfulness meditation will report lower levels of stress compared to individuals who do not engage in mindfulness meditation."

Hypothesis: "Increased social media use is associated with higher levels of depression among adolescents."

Hypothesis: "Children who receive praise for effort (rather than ability) will demonstrate higher levels of persistence and self-esteem."

Hypothesis: "Exposure to natural light during the day will result in improved sleep quality and mood among office workers."

Hypothesis: "Students who study in a quiet environment will perform better on exams compared to students who study in noisy environments."



THE FUNDAMENTALS OF PSYCHOLOGICAL RESEARCH

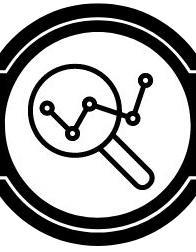
Falsifiable a falsifiable hypothesis in psychology is a statement that can be tested and *potentially proven false* through observation or experimentation.

- A claim or hypothesis must be able to be tested and potentially proven wrong to be considered scientifically valid.



Hypothesis: "Increased exposure to violent video games leads to higher levels of aggression in adolescents."

This hypothesis can be tested by conducting experiments where participants are randomly assigned to either play violent video games or non-violent video games. By measuring aggression levels before and after gameplay, researchers can determine if there is a significant difference between the two groups. If the results show no increase in aggression among those who played violent video games, the hypothesis would be falsified.



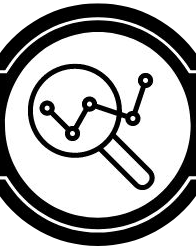
THE FUNDAMENTALS OF PSYCHOLOGICAL RESEARCH

Peer Review a process where research articles and studies are *evaluated by experts in the field before they are published* in academic journals.

- These experts, or peers, critically assess the quality, validity, and significance of the research, providing feedback and recommendations to the authors.

.....

Research Submission
Editorial Office
Assignment to Reviewers
Review Process
Reviewer Feedback
Editor Decision
Author Decision
Final Decision
Publication to Journal



THE FUNDAMENTALS OF PSYCHOLOGICAL RESEARCH

Replication the process of *repeating or reproducing a research study* to determine if its findings can be consistently observed.

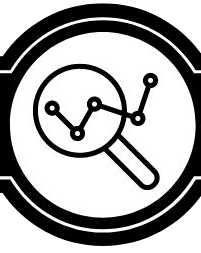
- This involves conducting the same experiment or study with new participants, under similar conditions, and using the same or similar procedures as the original study.

Replication Attempt: Other researchers attempt to replicate the original study by conducting a similar study with new participants.

Results Comparison: The data collected from the replication study are analyzed and compared to the results of the original study.

Confirmation or Discrepancy: If the results of the replication study align closely with the original findings, it confirms the reliability of the original results. If there are discrepancies, further investigation is needed to understand potential factors contributing to the differences.

Publication of Replication Results: The findings of the replication study are published, contributing to the scientific literature and providing insight into the robustness and generalizability of the original findings.



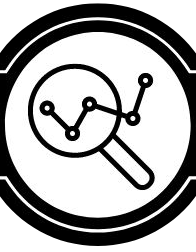
THE FUNDAMENTALS OF PSYCHOLOGICAL RESEARCH

Reliability

A measure or test is considered reliable if it produces **consistent results** when administered repeatedly under similar conditions.



Validity



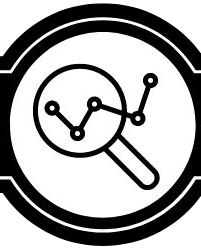
THE FUNDAMENTALS OF PSYCHOLOGICAL RESEARCH

Reliability

A measure or test is considered reliable if it produces **consistent results** when administered repeatedly under similar conditions.

“RRR” stands for **“Repeated, Reliable Results.”**

Validity



THE FUNDAMENTALS OF PSYCHOLOGICAL RESEARCH

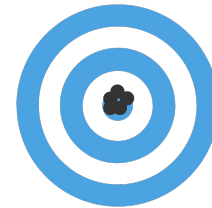
Reliability

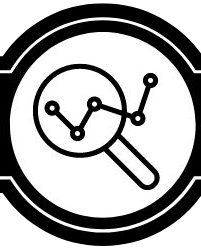
A measure or test is considered reliable if it produces **consistent results** when administered repeatedly under similar conditions.

“RRR” stands for “Repeated, Reliable Results.”

Validity

Validity in psychology refers to the extent to which a research study or measurement tool accurately **measures what it intends to measure**. A measure or test is considered valid if it effectively assesses the construct or concept it is designed to measure.





THE FUNDAMENTALS OF PSYCHOLOGICAL RESEARCH

Reliability

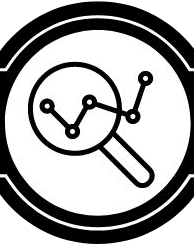
A measure or test is considered reliable if it produces **consistent results** when administered repeatedly under similar conditions.

"RRR" stands for "Repeated, Reliable Results."

Validity

Validity in psychology refers to the extent to which a research study or measurement tool accurately **measures what it intends to measure**. A measure or test is considered valid if it effectively assesses the construct or concept it is designed to measure.

"VET" stands for "Valid Evidence, True."



THE FUNDAMENTALS OF PSYCHOLOGICAL RESEARCH

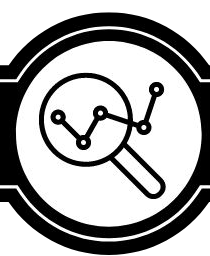
The American Psychological Association (APA) is a leading professional organization dedicated to advancing the field of psychology and promoting the application of psychological knowledge to improve human welfare.

- Founded in 1892, the APA has grown to become the largest association of psychologists worldwide, with over 121,000 members, including researchers, educators, clinicians, and students.



AMERICAN PSYCHOLOGICAL ASSOCIATION

Through its publications, conferences, advocacy efforts, and educational initiatives, the APA plays a critical role in shaping the direction of psychological research, practice, and policy. Its mission encompasses a commitment to fostering psychological research, promoting ethical standards and practices, advocating for the profession of psychology, and disseminating psychological knowledge to the public.



THE FUNDAMENTALS OF PSYCHOLOGICAL RESEARCH

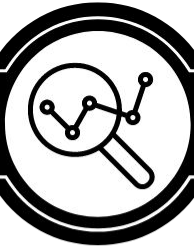
AMERICAN PSYCHOLOGICAL ASSOCIATION (APA)

Largest scientific and professional
organization of psychologists in the
United States



EXPLORING DESCRIPTIVE RESEARCH METHODS

ap psychology



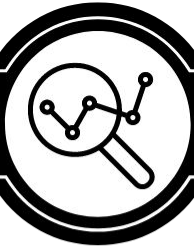
EXPLORING DESCRIPTIVE RESEARCH METHODS

Research Design- Broader Framework

The *overall plan* (blueprint) for how you will answer a research question. It includes deciding what you want to study, what you want to find out, and how you will gather and analyze your information.

The BIG 5 research designs in this course will be experiment, case study, naturalistic observation, correlational study, meta-analysis.

Methodology- Specific Techniques



EXPLORING DESCRIPTIVE RESEARCH METHODS

Research Design- Broader Framework

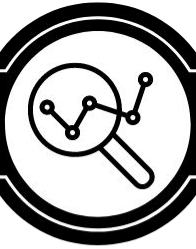
The *overall plan* (blueprint) for how you will answer a research question. It includes deciding what you want to study, what you want to find out, and how you will gather and analyze your information.

The **5 research designs** in this course will be experiment, case study, naturalistic observation, correlational study, meta-analysis.

Methodology- Specific Techniques

The tools and methods you use to *collect* your data/specific ways to *gather* information.

Surveys, interviews, questionnaires, observations, field studies, focus groups.



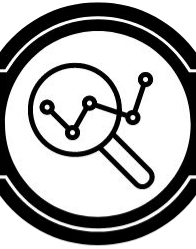
EXPLORING DESCRIPTIVE RESEARCH METHODS

Quantitative Data (Numerical)

Quantitative Data is *numbers-based* information gathered from surveys, tests, or experiments.

It helps us understand patterns and relationships in a precise way.

Qualitative Data



EXPLORING DESCRIPTIVE RESEARCH METHODS

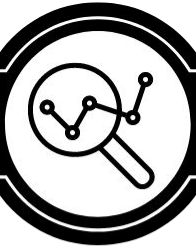
Quantitative Data (Numerical)

Quantitative Data is *numbers-based* information gathered from surveys, tests, or experiments.

It helps us understand patterns and relationships in a precise way.

Q for **Quantity**: Quantitative data is about the Quantity of numbers.

Qualitative Data



EXPLORING DESCRIPTIVE RESEARCH METHODS

Quantitative Data (Numerical)

Quantitative Data is numbers-based information gathered from surveys, tests, or experiments.

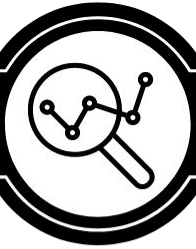
It helps us understand patterns and relationships in a precise way.

Q for **Quantity**: Quantitative data is about the Quantity of numbers.

Qualitative Data (Non-Numerical)

Qualitative data is *not about numbers* but gives deeper insights into complex topics.

Information collected through methods like interviews or observations, focusing on people's experiences and behaviors.



EXPLORING DESCRIPTIVE RESEARCH METHODS

Quantitative Data (Numerical)

Quantitative Data is numbers-based information gathered from surveys, tests, or experiments.

It helps us understand patterns and relationships in a precise way.

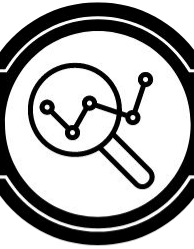
Q for Quantity: *Quantitative data is about the Quantity of numbers.*

Qualitative Data (Non-Numerical)

Qualitative data is *not about numbers* but gives deeper insights into complex topics.

Information collected through methods like interviews or observations, focusing on people's experiences and behaviors.

Q for Quality: *Qualitative data is about the Quality of experiences and observations.*



EXPLORING DESCRIPTIVE RESEARCH METHODS

Likert Scales are a *measurement tool* used in surveys and questionnaires to assess people's attitudes, opinions, or perceptions.

- Respondents are presented with a series of statements or questions and asked to indicate their level of agreement or disagreement on a scale, typically ranging from 'Strongly Agree' to 'Strongly Disagree'.

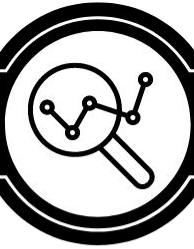
Please indicate your level of agreement with the following statements:

I enjoy spending time with friends.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

I feel confident in my ability to succeed in challenging tasks.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree



EXPLORING DESCRIPTIVE RESEARCH METHODS

Likert Scales are a *measurement tool* used in surveys and questionnaires to assess people's attitudes, opinions, or perceptions.

- Respondents are presented with a series of statements or questions and asked to indicate their level of agreement or disagreement on a scale, typically ranging from 'Strongly Agree' to 'Strongly Disagree'.

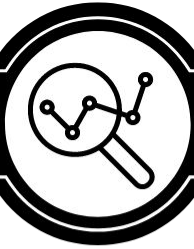
Please indicate your level of agreement with the following statements:

I enjoy spending time with friends.

1. Strongly Agree
2. Agree
3. Neutral
4. Disagree
5. Strongly Disagree

I feel confident in my ability to succeed in challenging tasks.

1. Strongly Agree
2. Agree
3. Neutral
4. Disagree
5. Strongly Disagree



EXPLORING DESCRIPTIVE RESEARCH METHODS

Structured Interviews research method in which *predetermined questions* are asked to all participants in the same order.

- This standardized approach allows for consistent data collection and facilitates comparisons across participants.

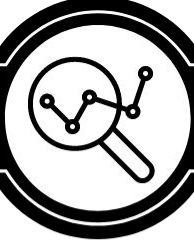
Interviewer: Good morning! Thank you for joining us today. We're conducting interviews to gather insights on people's preferences for outdoor activities. Let's begin:

How often do you engage in outdoor activities such as hiking, camping, or picnics?

- Daily
- Several times a week
- Once a week
- Occasionally
- Rarely or never

What factors influence your decision to participate in outdoor activities?

- Enjoyment of nature
- Physical fitness goals
- Spending time with friends or family
- Seeking adventure and new experiences
- Other (please specify)



EXPLORING DESCRIPTIVE RESEARCH METHODS

Survey Technique research method in psychology used to collect data from a sample of individuals through *self-report measures*.

- Surveys typically involve asking participants a series of open-ended questions about their attitudes, beliefs, opinions, or behaviors.
- The survey technique can yield both qualitative and quantitative data, depending on the nature of the questions and the response format used in the survey.

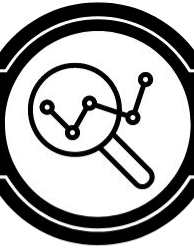
Topic: Stress and Coping Strategies

What are the main sources of stress in your life? (Open-ended)

On a scale of 1 to 5, how effective do you find the following coping strategies in managing stress? (Quantitative)

Talking to friends or family

- 1 - Not effective at all
- 2 - Slightly effective
- 3 - Moderately effective
- 4 - Very effective
- 5 - Extremely effective



EXPLORING DESCRIPTIVE RESEARCH METHODS

Wording Effect subtle changes in the phrasing or wording of survey questions can *influence respondents' interpretations and responses*.

- This effect can lead to biased or inaccurate data due to variations in how individuals perceive and understand the questions.

Imagine a school survey about student wellness habits. Two versions of the same question are distributed to different groups of students:

Version 1: "Do you feel stressed about your upcoming exams?"

Version 2: "Are you worried about failing your upcoming exams?"

In this scenario, the subtle difference in wording between the two versions ("stressed" vs. "worried about failing") may evoke different responses from students.

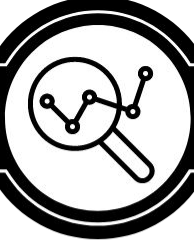


EXPLORING DESCRIPTIVE RESEARCH METHODS

Social Desirability Bias refers to the tendency of individuals to *respond in a manner that is viewed favorably by others* or conforms to social norms, rather than providing honest or accurate answers.



Imagine a survey that asks adults about their personal hygiene habits, and one of the questions is whether they ever pee in the shower. **Due to social desirability bias, some people might feel pressured to deny this behavior, even if they do it occasionally.** They may worry that admitting to such a habit could make them seem unhygienic or disrespectful of social norms. So, even if someone regularly does this for convenience, they might still say they never pee in the shower to avoid being judged negatively.



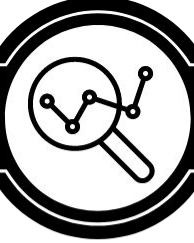
EXPLORING DESCRIPTIVE RESEARCH METHODS

Naturalistic Observation research method in psychology where researchers observe and record behavior in *real-world settings without intervention or manipulation*.

- Often used to generate hypotheses, identify patterns, and gain a deeper understanding of human behavior in its natural context.



Naturalistic observation could involve studying teenagers' behavior with their phones in a school cafeteria. Researchers could observe how teenagers interact with their devices during lunch breaks, noting how often they use their phones versus interacting with peers, what types of activities they engage in on their phones (like social media, gaming, texting), and how their phone usage affects their social interactions. **By observing behavior in a natural setting without interference, researchers can gain insights into how technology influences social behaviors and group dynamics among teenagers.**



EXPLORING DESCRIPTIVE RESEARCH METHODS

Naturalistic Observation research method in psychology where researchers observe and record behavior in *real-world settings without intervention or manipulation*.

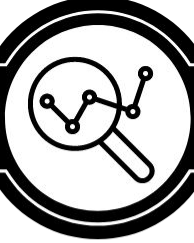
- Often used to generate hypotheses, identify patterns, and gain a deeper understanding of human behavior in its natural context.

Researchers employ various data collection methods during naturalistic observation:

Tally Counts: Researchers record occurrences of specific behaviors by marking down each instance and noting when and how often these behaviors occur.

Observer Narratives: Observers take notes during observation sessions, capturing detailed descriptions of behaviors and interactions. Later, these notes are reviewed to identify patterns and trends in behavior.

Audio or Video Recordings: In some cases, researchers may use audio or video recordings to document observation sessions. This allows for a more accurate and comprehensive analysis of behavior, particularly for complex or subtle behaviors that may be missed during live observation.

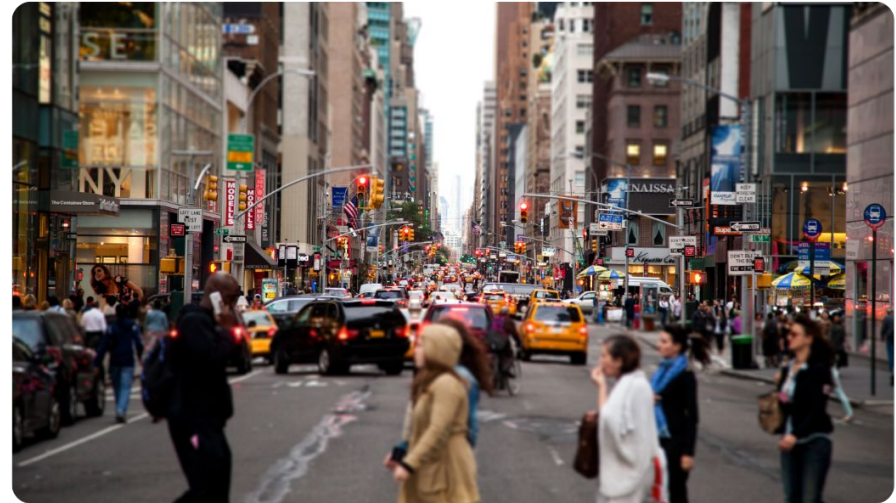


EXPLORING DESCRIPTIVE RESEARCH METHODS

EarthCam Observation Activity:

Exploring Human Behavior To observe and analyze human behavior in real-world settings using EarthCam surveillance footage, applying the principles of naturalistic observation.

- What are some advantages of using naturalistic observation in studying human behavior?
- What are some challenges or limitations associated with conducting naturalistic observation studies?



https://www.earthcam.com/cams/nevada/lasvegas/index.php?cam=catsmeow_lv_fremont



EXPLORING DESCRIPTIVE RESEARCH METHODS

Case Study research method in psychology that involves an *in-depth examination* of a single individual, group, or phenomenon.

- Findings from case studies may not always be generalizable to broader populations due to their focus on specific cases.

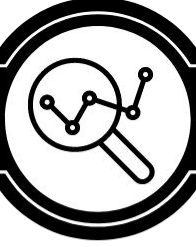


A case study in psychology is the case of **Genie**, also known as the "Wild Child." Genie was a girl who was severely neglected and abused by her parents and isolated from the outside world for nearly 13 years. When she was discovered by authorities at the age of 13, she exhibited extreme social and cognitive deficits, lacking language skills and exhibiting signs of severe developmental delays. Researchers closely studied Genie's case, documenting her progress as she underwent intensive rehabilitation and therapy. Through this case study, psychologists gained insights into the critical period hypothesis, which suggests that there is an optimal window for language acquisition during early childhood.

UNDERSTANDING CORRELATIONAL

RESEARCH METHODS

ap psychology



UNDERSTANDING CORRELATIONAL RESEARCH METHODS

Correlational Research scientific method used in psychology to examine the *relationship* between two or more variables.

- Correlational studies *do not involve manipulation of variables*; instead, they focus on observing and measuring naturally occurring *associations* between variables.





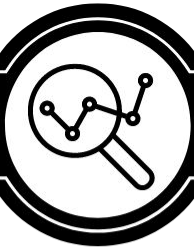
UNDERSTANDING CORRELATIONAL RESEARCH METHODS

Correlational Research scientific method used in psychology to examine the *relationship* between two or more variables.

- Correlational studies *do not involve manipulation of variables*; instead, they focus on observing and measuring naturally occurring *associations* between variables.



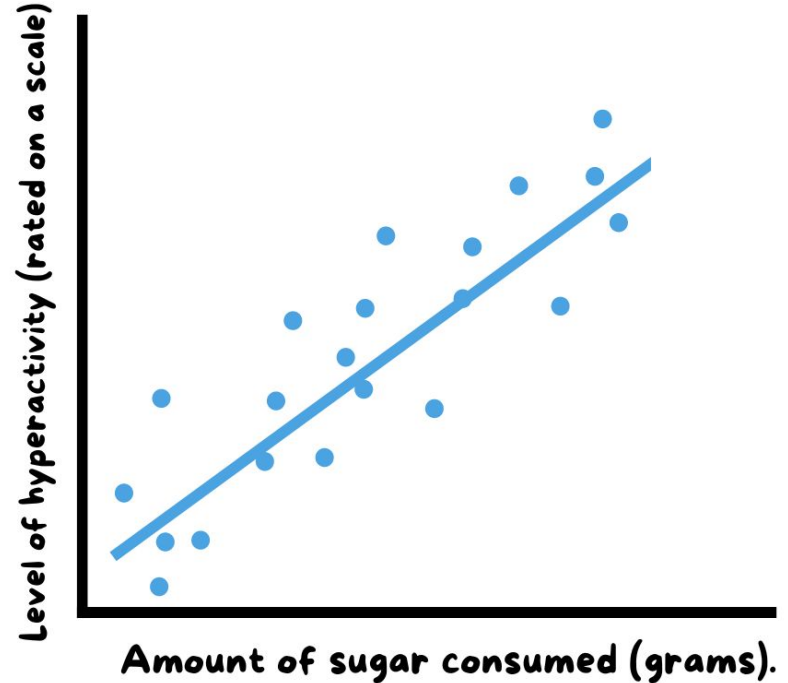
A study that examines **the relationship between sugar consumption and hyperactivity among children**. Researchers observe a group of children at a birthday party where the amount of sugary foods consumed is recorded along with observations of their activity levels. After analyzing the data, researchers find a positive correlation, suggesting that children who consume more sugar tend to show higher levels of hyperactivity. However, this correlational research indicates a relationship between sugar intake and hyperactivity but does not establish causation.

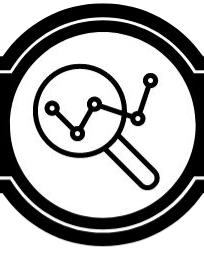


UNDERSTANDING CORRELATIONAL RESEARCH METHODS

Correlational Research allows psychologists to *identify patterns and make predictions*, but it does not establish causation between variables.

CORRELATION RELATIONSHIP



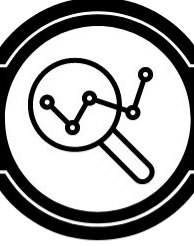


UNDERSTANDING CORRELATIONAL RESEARCH METHODS

Third Variable Problem the possibility that a third, *unmeasured variable may be influencing the relationship* between the two variables of interest.

- The presence of a correlation does not imply a cause-and-effect relationship between the variables, as there could be other factors at play.





UNDERSTANDING CORRELATIONAL RESEARCH METHODS

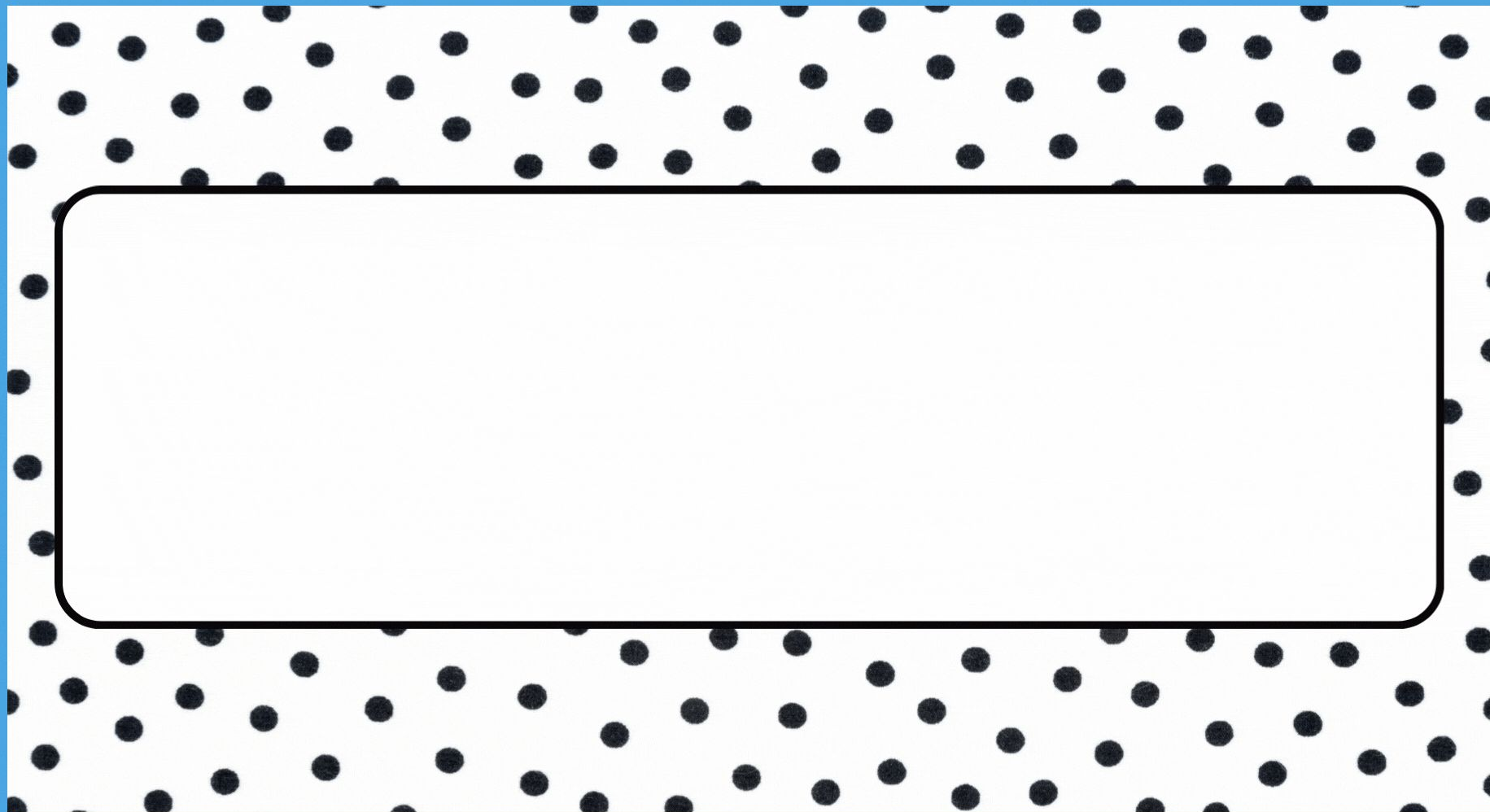
Third Variable Problem the possibility that a third, *unmeasured variable* may be *influencing the relationship* between the two variables of interest.

- The presence of a correlation does not imply a cause-and-effect relationship between the variables, as there could be other factors at play.

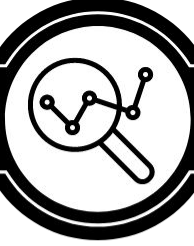


A common belief is that sugar consumption leads to hyperactivity in children. However, when observing children at a birthday party where sugar intake and activity levels are measured, **several unmeasured variables might influence the observed hyperactivity.**

- *Excitement and social interaction:* The excitement of the party and playing with friends could naturally increase children's activity levels.
- *Environmental stimuli:* Loud music, games, and the overall party atmosphere contribute to heightened stimulation and activity.
- *Parental expectations:* Parents might anticipate hyperactive behavior due to sugar intake, thus potentially biasing their observations of normal child behavior as hyperactive.



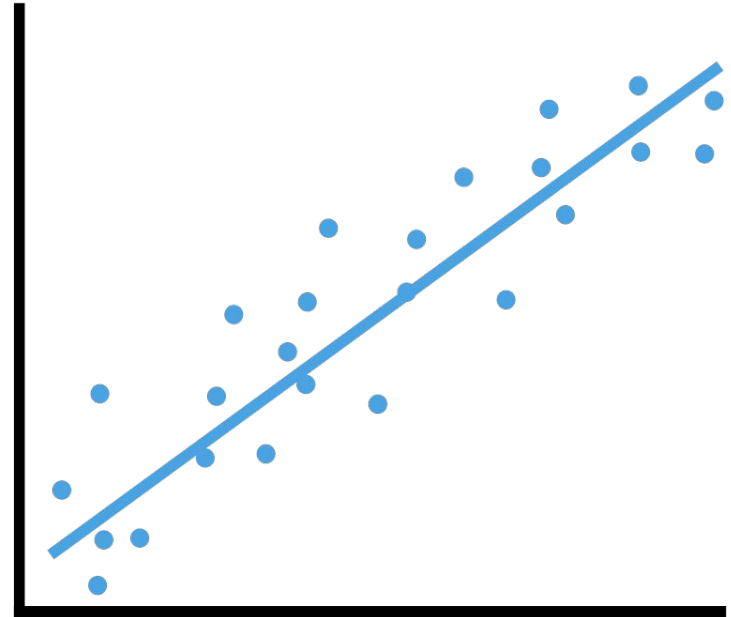
- 90% of children who experienced remote schooling during the pandemic show decreased reading levels.
- 80% of individuals who watch TV regularly are overweight. Does watching TV cause weight gain?
- 70% of children who had online classes during COVID-19 show reduced social skills.
- 75% of people who use social media extensively feel less satisfied with their personal lives.
- 75% of individuals who exercise regularly experience joint pain. Does exercising cause joint pain?
- 60% of individuals who take vitamins daily have lower energy levels. Do vitamins cause decreased energy levels?
- 80% of individuals who use social media frequently report feelings of loneliness. Does using social media cause loneliness?
- 70% of people who eat ice cream regularly have higher rates of sunburn. Does eating ice cream cause sunburn?

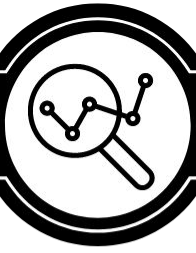


UNDERSTANDING CORRELATIONAL RESEARCH METHODS

Scatterplot a visual representation used in correlational research to *display the relationship between two variables*.

- Scatterplots allow researchers to visually assess the strength and direction of the correlation between the variables and identify any outliers or unusual patterns in the data.





UNDERSTANDING CORRELATIONAL RESEARCH METHODS

Correlation Coefficient statistical measure used in correlational research to quantify the strength and direction of the relationship between two variables.

- It is represented by the symbol "**r**" and **ranges from -1 to +1.**

+0.98

-0.78

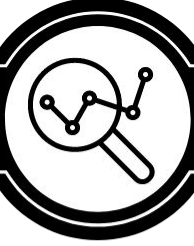
+0.30

-0.60

Number represents the strength of relationship.

r

The correlation coefficient is usually represented by the letter **r**.



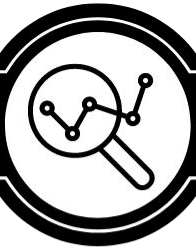
UNDERSTANDING CORRELATIONAL RESEARCH METHODS

Correlation Coefficient The closer the correlation coefficient is to +1 or -1, the stronger the relationship between the variables.

- **Stronger = Predictable**
- **Weaker = Less Predictable**

$r = 1.0$

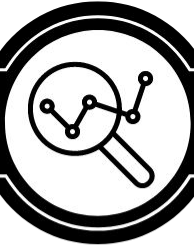




UNDERSTANDING CORRELATIONAL RESEARCH METHODS

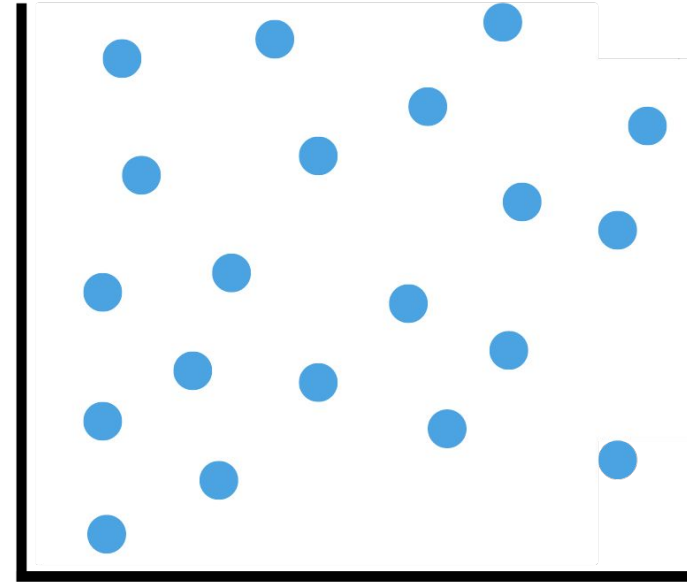
Correlation Coefficient A correlation coefficient of **0** indicates no relationship between the variables.

- The number of friends a teenager has on social media and their favorite color.
- The amount of time spent playing video games and the number of siblings a teenager has.
- The brand of shoes a teenager wears and their favorite movie genre.
- The amount of time spent doing homework and the type of music a teenager listens to.
- The frequency of using emojis in text messages and the preferred mode of transportation to school.



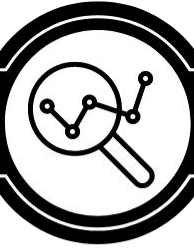
UNDERSTANDING CORRELATIONAL RESEARCH METHODS

Correlation Coefficient A correlation coefficient of **0** indicates no relationship between the variables.



No Correlation

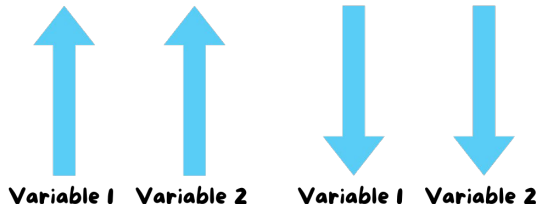
$$r = 0$$



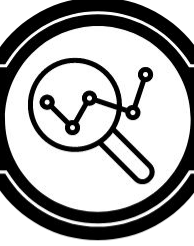
UNDERSTANDING CORRELATIONAL RESEARCH METHODS

Positive Correlation A correlation coefficient of $+1$ indicates a perfect positive relationship, one variable tends to decrease as the other variable decreases, or one variable tends to increase when the other increases.

- Variables moving in the **same** direction.



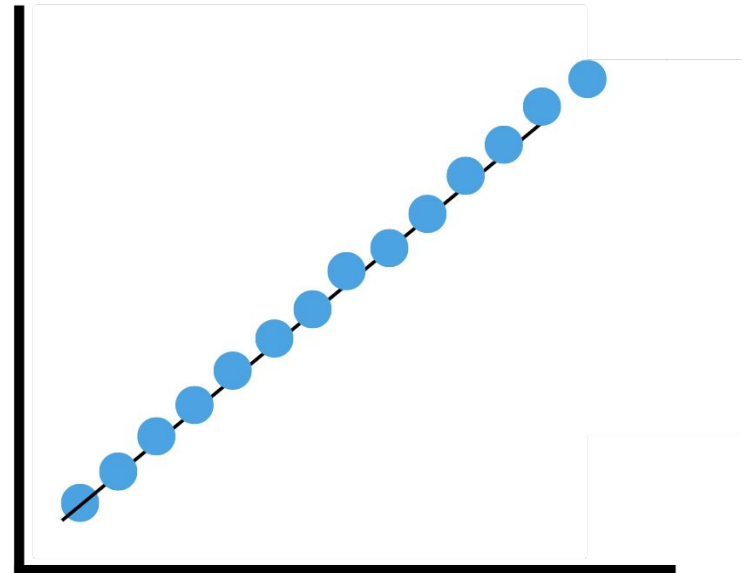
- The more time spent practicing a musical instrument, the higher the skill level achieved.
- Increased hours of part-time work may lead to higher earnings for teenagers.
- More hours spent exercising per week could lead to better physical fitness and health outcomes.
- The fewer hours dedicated to studying, the lower the grades achieved in school.
- The less time spent volunteering or engaging in community service, the lower the sense of satisfaction and fulfillment experienced.



UNDERSTANDING CORRELATIONAL RESEARCH METHODS

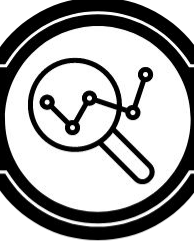
Positive Correlation A correlation coefficient of $+1$ indicates a perfect positive relationship, meaning that as one variable increases, the other variable also increases.

- Variables moving in the **same** direction.



Perfect Positive Correlation

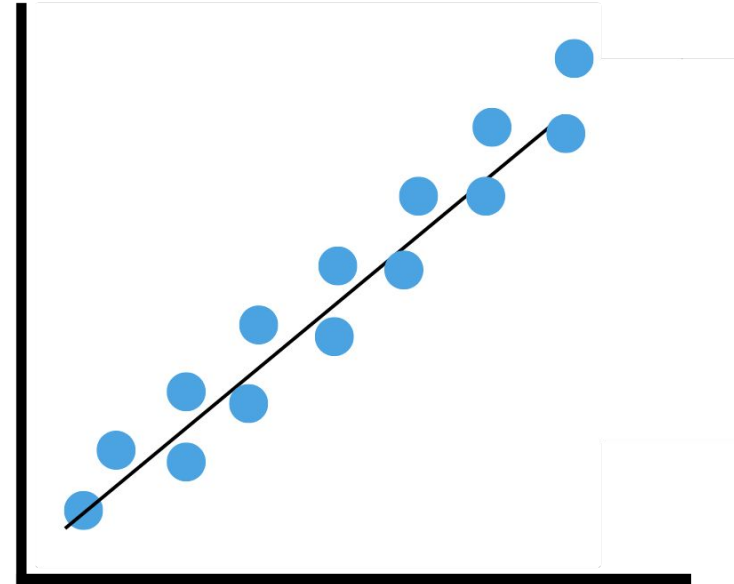
$$r = 1$$



UNDERSTANDING CORRELATIONAL RESEARCH METHODS

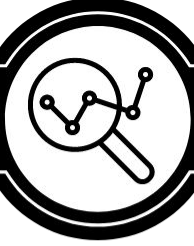
Positive Correlation A correlation coefficient of $+1$ indicates a perfect positive relationship, meaning that as one variable increases, the other variable also increases.

- Variables moving in the **same** direction.



Strong Positive Correlation

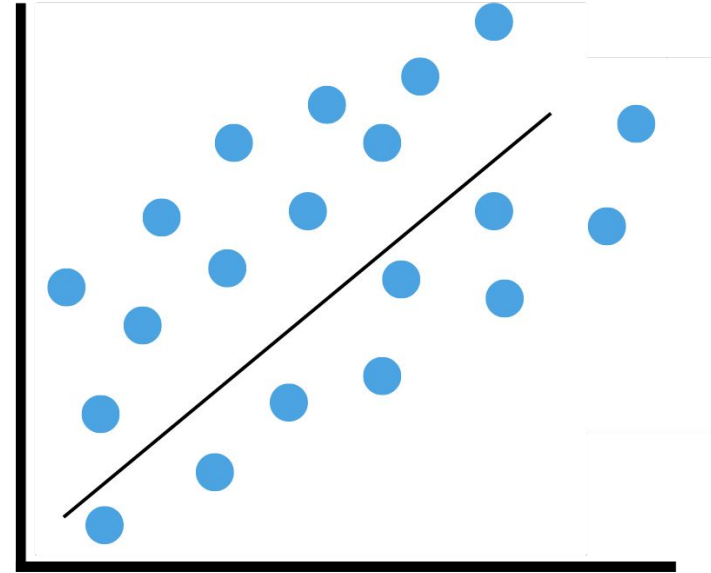
$$r = 0.8$$



UNDERSTANDING CORRELATIONAL RESEARCH METHODS

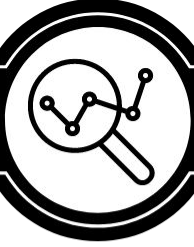
Positive Correlation A correlation coefficient of +1 indicates a perfect positive relationship, meaning that as one variable increases, the other variable also increases.

- Variables moving in the **same** direction.



Weak Positive Correlation

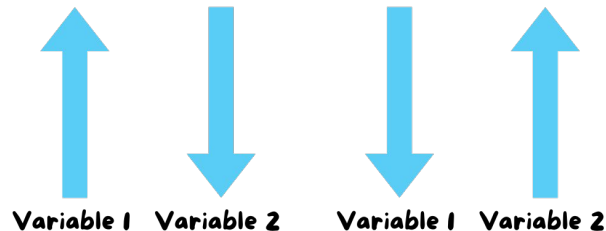
$$r = 0.5$$



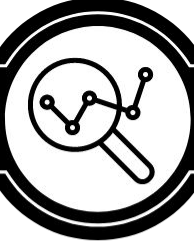
UNDERSTANDING CORRELATIONAL RESEARCH METHODS

Negative Correlation A correlation coefficient of -1 indicates a perfect negative relationship, meaning that as one variable increases, the other variable decreases.

- Variables moving in **opposite** directions.



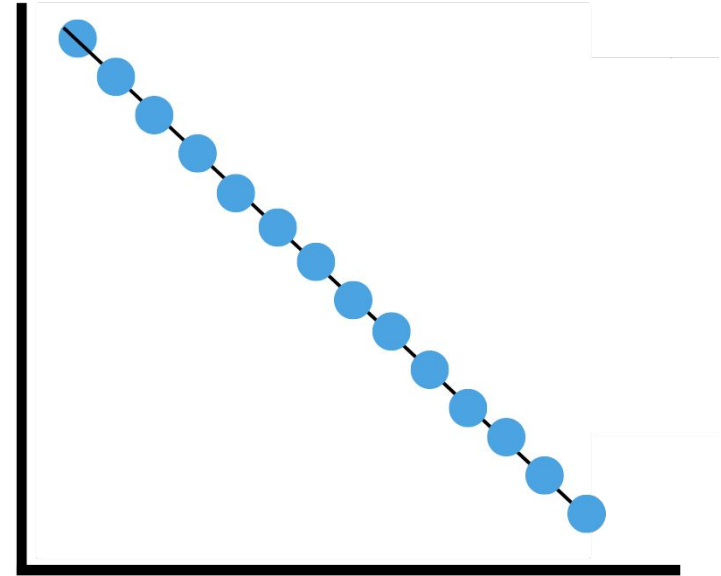
- The more hours spent on social media, the lower the grades achieved in school.
- Increased screen time may lead to decreased physical activity levels among teenagers.
- The more hours spent working a part-time job, the lower the amount of time available for studying.
- Higher levels of stress may correlate with lower levels of happiness or life satisfaction.
- The more time spent commuting to school, the lower the amount of time available for extracurricular activities.



UNDERSTANDING CORRELATIONAL RESEARCH METHODS

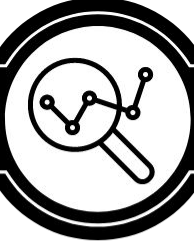
Negative Correlation A correlation coefficient of -1 indicates a perfect negative relationship, meaning that as one variable increases, the other variable decreases.

- Variables moving in **opposite** directions.



Perfect Negative Correlation

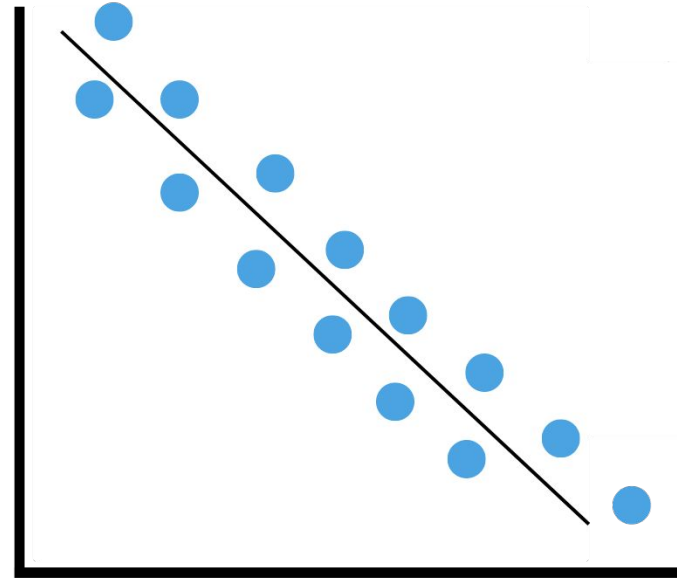
$$r = -1$$



UNDERSTANDING CORRELATIONAL RESEARCH METHODS

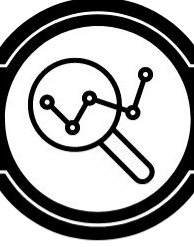
Negative Correlation A correlation coefficient of -1 indicates a perfect negative relationship, meaning that as one variable increases, the other variable decreases.

- Variables moving in **opposite** directions.



Strong Negative Correlation

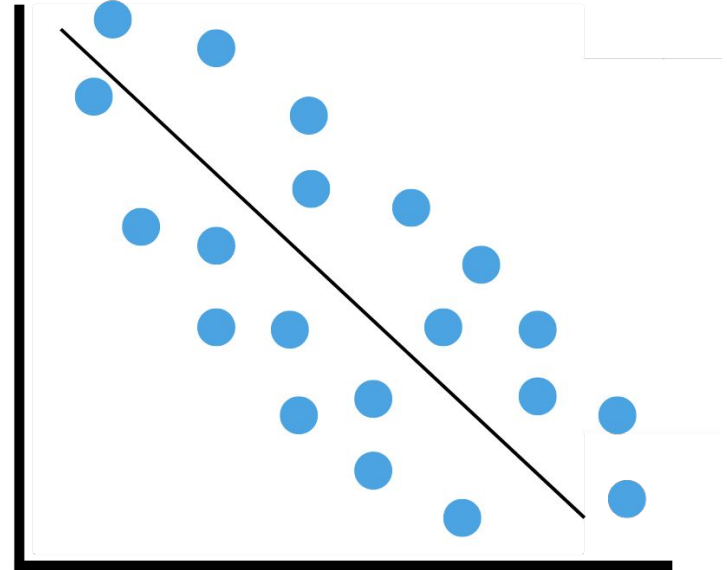
$$r = -0.8$$



UNDERSTANDING CORRELATIONAL RESEARCH METHODS

Negative Correlation A correlation coefficient of -1 indicates a perfect negative relationship, meaning that as one variable increases, the other variable decreases.

- Variables moving in **opposite** directions.



Weak Negative Correlation

$$r = -0.5$$

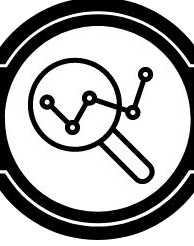
"Strength, Positive or Negative, and Close to 1 or 0."

- **Strength:** Think about how strong the relationship is between the variables. A correlation coefficient close to 1 or -1 indicates a strong relationship, while one closer to 0 indicates a weak relationship.
- **Positive or Negative:** Determine whether the correlation is positive or negative. A positive correlation means that as one variable increases, the other variable tends to increase as well. A negative correlation means that as one variable increases, the other tends to decrease.

TECHNIQUES IN

EXPERIMENTAL PSYCHOLOGY

ap psychology

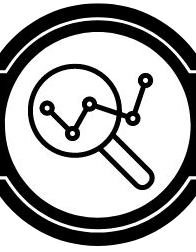


TECHNIQUES IN EXPERIMENTAL PSYCHOLOGY

Experimental Method a research technique used to investigate cause-and-effect relationships between variables.

- In an experiment, the researcher manipulates one variable and measures its effect on another variable.





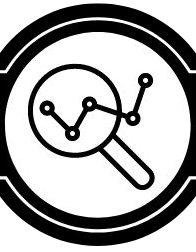
TECHNIQUES IN EXPERIMENTAL PSYCHOLOGY

Independent Variable

Independent Variable the variable that the researcher deliberately changes or manipulates in an experiment.

The factor that researchers are testing to see if it causes changes in behavior or outcomes.

Dependent Variable



TECHNIQUES IN EXPERIMENTAL PSYCHOLOGY

Independent Variable

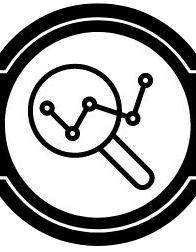
Independent Variable the variable that the researcher deliberately changes or manipulates in an experiment.

The factor that researchers are testing to see if it causes changes in behavior or outcomes.

Dependent Variable

Dependent Variable the variable that is observed and measured for changes in an experiment.

The outcome or response that may be affected by the independent variable.



TECHNIQUES IN EXPERIMENTAL PSYCHOLOGY

Independent Variable

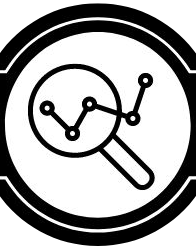
"I.C.E."

"I": "Independent" starts with the letter "I".

"C": The independent variable is Controlled by the researcher.

"E": It's the variable that researchers change to see its Effect.

Dependent Variable



TECHNIQUES IN EXPERIMENTAL PSYCHOLOGY

Independent Variable

"I.C.E."

"I": "Independent" starts with the letter "I".

"C": The independent variable is Controlled by the researcher.

"E": It's the variable that researchers change to see its Effect.

Dependent Variable

"D.R.E.A.M."

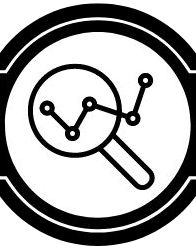
"D": The "Dependent" variable.

"R": It's the Result or Response that changes.

"E": It's what's being Examined or observed.

"A": It's Affected by the independent variable.

"M": It's Measured or observed in an experiment.



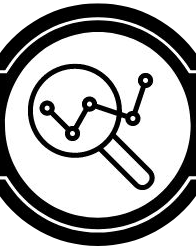
TECHNIQUES IN EXPERIMENTAL PSYCHOLOGY

Independent Variable

Manipulated

Dependent Variable

Measured

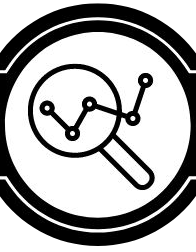


TECHNIQUES IN EXPERIMENTAL PSYCHOLOGY

Let's consider a scenario where we're studying the effects of studying on test scores.

Independent Variable

Dependent Variable



TECHNIQUES IN EXPERIMENTAL PSYCHOLOGY

Let's consider a scenario where we're studying the effects of studying on test scores.

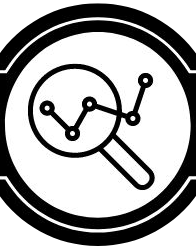
Independent Variable

The amount of time spent studying.

In this scenario, the researcher can manipulate this variable by assigning different groups of students to study for different durations, such as one group studying for 1 hour, another for 2 hours, and so on.

Dependent Variable

Test scores. This variable is what the researcher is measuring and is expected to change based on the manipulation of the independent variable. In our example, the test scores of the students would be measured after they have studied for their assigned durations.



TECHNIQUES IN EXPERIMENTAL PSYCHOLOGY

Confounding Variables It's a variable that wasn't accounted for or controlled in the study but still affects the results.

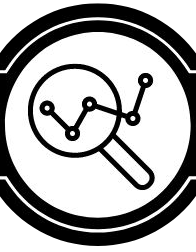
- Confounding variables can distort the true effect of the independent variable on the dependent variable, making it difficult to determine causality.

Prior knowledge: Students with different levels of prior knowledge on the test topic could perform differently regardless of the time spent studying.

Study environment: Factors such as noise level, distractions, or comfort of the study environment could impact studying effectiveness and subsequently test scores.

Motivation: Variations in students' motivation levels or interest in the subject matter might affect how much effort they put into studying and thus their test scores.

Quality of study materials: Differences in the quality or relevance of study materials used by different groups of students could influence their understanding and retention of the material.



TECHNIQUES IN EXPERIMENTAL PSYCHOLOGY

Operational Definitions specifies how a researcher will measure and manipulate variables in a study.

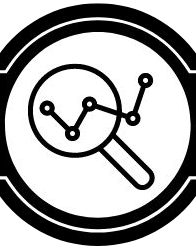
- It outlines the exact procedures or operations used to define and quantify abstract concepts or constructs, making them measurable and observable.
- Operational definitions ensure consistency and clarity in research, allowing other researchers to replicate the study and verify its findings.

Amount of time studying: Operationalized as the number of hours spent actively engaged in studying a specific subject or topic, as reported by participants in a study log or self-report questionnaire.

Test scores: Operationalized as the numerical score obtained by each participant on a standardized test assessing their knowledge of the studied material, measured on a scale from 0 to 100.

Prior knowledge: Operationalized as the score obtained by participants on a pre-test assessing their baseline understanding of the test material before any studying takes place.

Study environment: Operationalized as the level of noise and number of distractions present in the room where participants study, measured on a scale from 1 to 5 based on observer ratings.

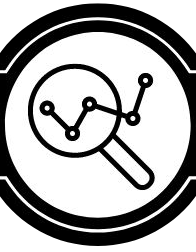


TECHNIQUES IN EXPERIMENTAL PSYCHOLOGY

Experimental Group

Experimental Group the participants in the experimental group are indeed exposed to the independent variable, which is the variable manipulated by the researcher to observe its effect on the dependent variable.

Control Group



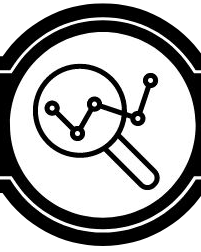
TECHNIQUES IN EXPERIMENTAL PSYCHOLOGY

Experimental Group

Experimental Group the participants in the experimental group are indeed exposed to the independent variable, which is the variable manipulated by the researcher to observe its effect on the dependent variable.

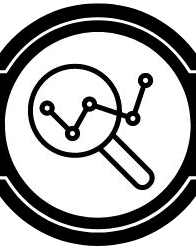
Control Group

Control Group is a group of participants who were not exposed to the independent variable, providing a baseline for comparison with the experimental group.



TECHNIQUES IN EXPERIMENTAL PSYCHOLOGY

Experimental Group	Control Group
Participants assigned to the experimental group would receive a specific study intervention, such as a study technique or educational program aimed at improving their learning efficiency. For example, they might use a mnemonic strategy to memorize vocabulary words.	



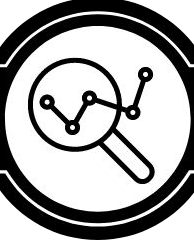
TECHNIQUES IN EXPERIMENTAL PSYCHOLOGY

Experimental Group

Participants assigned to the experimental group would receive a specific study intervention, such as a study technique or educational program aimed at improving their learning efficiency. For example, they might use a mnemonic strategy to memorize vocabulary words.

Control Group

Participants assigned to the control group would not receive any special study intervention and would proceed with their usual study routine or no intervention. For example, they might continue studying vocabulary words using their regular methods without any additional techniques.



TECHNIQUES IN EXPERIMENTAL PSYCHOLOGY

Random Assignment research method used to assign participants to different groups in an experiment randomly.

- Ensures that each participant has an equal chance of being assigned to any condition, helping to minimize bias and ensure that the groups are comparable at the start of the study.

Drawing names from a hat: Assign each participant a number and then draw numbers from a hat to determine group assignment.

Random number generator: Use a computer program or app to generate random numbers to assign participants to groups.

Coin toss: Assign participants to groups based on the outcome of a coin toss, such as heads for one group and tails for the other.

Random assignment software: Utilize specialized software designed for random assignment in research studies.



TECHNIQUES IN EXPERIMENTAL PSYCHOLOGY

Placebo Effect the phenomenon where individuals experience improvement in their condition solely because they believe they are receiving a beneficial treatment, rather than due to any active ingredient or physiological mechanism in the placebo itself.



In a study examining the effects of studying on test scores, the placebo effect could manifest if participants who believe they are engaging in an effective study method experience an increase in their test scores, even if the study method itself is ineffective or unrelated to academic performance. For example, if students are told that a certain study technique has been shown to improve test scores (even if it hasn't), they may feel more confident and motivated, leading to better performance on the test. This highlights the importance of including a control group that doesn't receive any specific study instructions or interventions to isolate the true effects of studying on test scores from the placebo effect.



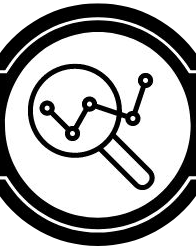
TECHNIQUES IN EXPERIMENTAL PSYCHOLOGY

Experimenter Bias the researcher's expectations or beliefs about the outcome of a study influence the results.

- This bias can inadvertently affect how the study is conducted or how data is interpreted, leading to inaccurate conclusions.



If the experimenters interact differently with participants in the experimental group (studying) compared to those in the control group (placebo condition), it could unintentionally impact the participants' performance. Additionally, if the experimenters know which group each participant belongs to, they might inadvertently convey their expectations or preferences, leading to biased results.

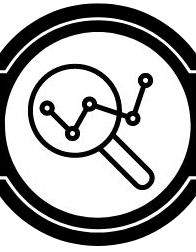


TECHNIQUES IN EXPERIMENTAL PSYCHOLOGY

Single-Blind Study

Single-Blind Study research design where participants are unaware of whether they belong to the experimental or control group, but the researchers conducting the study are aware of this information.

Double-Blind Study



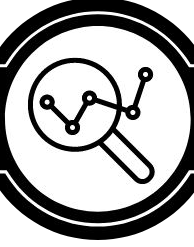
TECHNIQUES IN EXPERIMENTAL PSYCHOLOGY

Single-Blind Study

Single-Blind Study research design where participants are unaware of whether they belong to the experimental or control group, but the researchers conducting the study are aware of this information.

Double-Blind Study

Double-Blind Study research design where both the participants and the researchers conducting the study are unaware of who belongs to the experimental or control group.

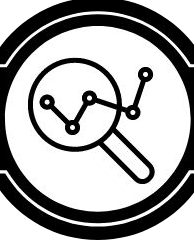


TECHNIQUES IN EXPERIMENTAL PSYCHOLOGY

Placebo Condition administering the placebo to one group of participants while the other group receives the actual treatment being tested.

- In a research study, the placebo is typically given to the control group.





TECHNIQUES IN EXPERIMENTAL PSYCHOLOGY

Define the Placebo Activity: Determine an activity for the control group that mimics the experimental condition but does not involve the active component being tested. This activity should appear credible and plausible to participants.

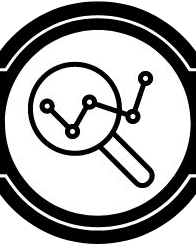
Random Assignment: Randomly assign participants to either the experimental group (studying) or the control group (placebo activity).

Ensure Similarity: Ensure that participants in the control group experience conditions as similar as possible to those in the experimental group, except for the absence of the active component being tested.

Blinding: Implement blinding techniques, such as single-blind or double-blind procedures, to prevent biases in administering the placebo condition.

Data Collection: Collect data on the outcomes of interest (in this case, test scores) for both the experimental and control groups.

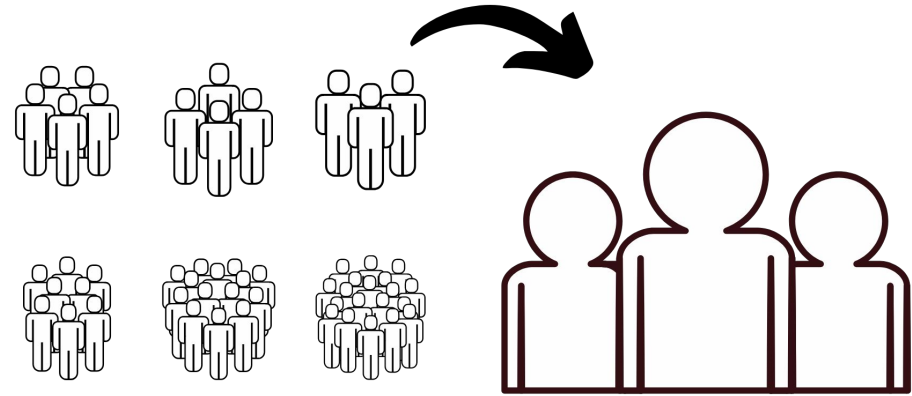
Analysis: Analyze the data to compare the effects of the active intervention (studying) with those of the placebo condition on the outcome variable (test scores).



TECHNIQUES IN EXPERIMENTAL PSYCHOLOGY

Sample refers to a subset of individuals or cases selected from a larger population for study.

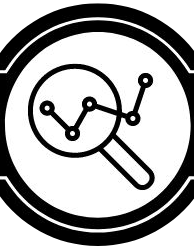
- Samples are used in research to make inferences about the population as a whole.



POPULATION

SAMPLE

Population of Interest: Students



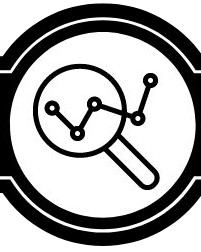
TECHNIQUES IN EXPERIMENTAL PSYCHOLOGY

Representative Sample a subset of individuals selected from a larger population in such a way that it accurately reflects the demographics, characteristics, and diversity of that population.

- By including a diverse range of participants that mirrors the population's composition, researchers can minimize biases and increase the likelihood that their results are applicable to the broader group they represent.

Stratified sampling is a method where the population is divided into subgroups, or strata, based on certain characteristics, and then random samples are taken from each stratum.

In the scenario of studying the effects of studying on test scores, researchers could use stratified sampling by dividing the student population into strata based on factors like grade level (e.g., 9th, 10th, 11th, and 12th grades) or academic performance (e.g., high achievers, average achievers, and low achievers). They would then randomly select participants from each stratum to ensure representation from all groups in the study.



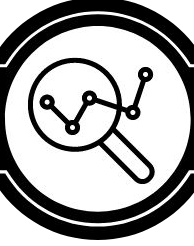
TECHNIQUES IN EXPERIMENTAL PSYCHOLOGY

Representative Sample a subset of individuals selected from a larger population in such a way that it accurately reflects the demographics, characteristics, and diversity of that population.

- By including a diverse range of participants that mirrors the population's composition, researchers can minimize biases and increase the likelihood that their results are applicable to the broader group they represent.

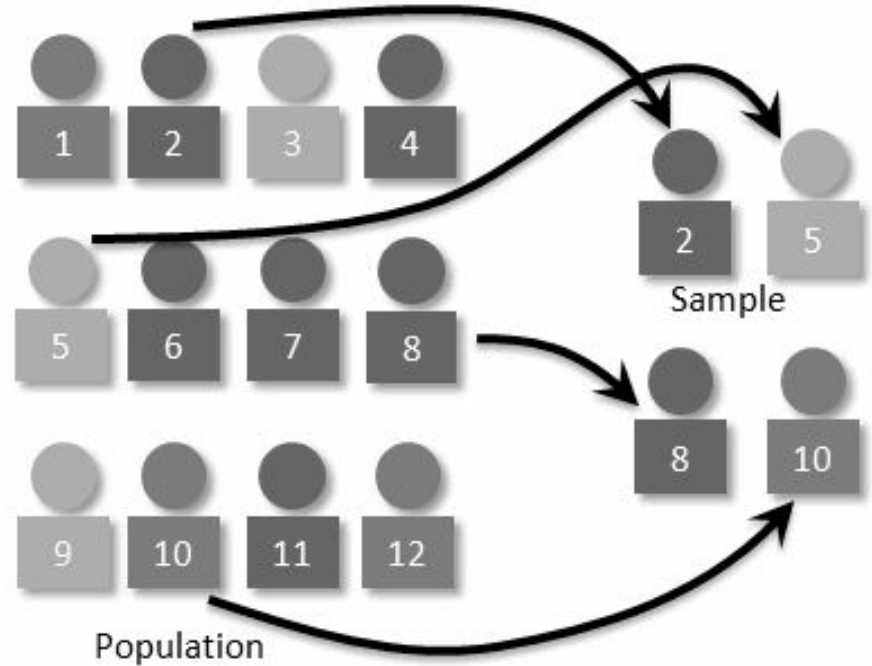
Convenience sampling, on the other hand, involves selecting participants based on their availability and accessibility to the researcher.

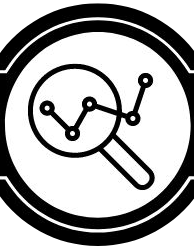
In the scenario, convenience sampling might involve recruiting students who are readily available to participate, such as those in a particular classroom or those who volunteer to take part in the study. While convenient, this method may introduce bias because it doesn't ensure that the sample is representative of the entire student population, potentially limiting the generalizability of the study's findings.



TECHNIQUES IN EXPERIMENTAL PSYCHOLOGY

Random Sample Random sampling ensures that each participant in the study has an equal opportunity to be included, which helps to minimize the influence of researcher bias and increase the generalizability of the findings to the population as a whole.





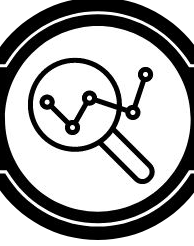
TECHNIQUES IN EXPERIMENTAL PSYCHOLOGY

Random Sample Random sampling ensures that each participant in the study has an equal opportunity to be included, which helps to minimize the influence of researcher bias and increase the generalizability of the findings to the population as a whole.

Lottery method: Assigning each member of the population a number and using a random drawing or lottery to select the sample.

Random sampling software: Utilizing computer software designed to generate random samples from a population database.

Random selection from a hat or bowl: Writing each member of the population on a separate piece of paper and then randomly selecting samples from a container.



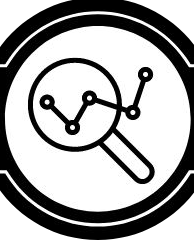
TECHNIQUES IN EXPERIMENTAL PSYCHOLOGY

Sample Bias This bias occurs when the sample is not representative of the larger population, leading to inaccurate or misleading results.

- It is essential to minimize sample bias to ensure the validity and generalizability of research findings to the broader population.



In the scenario of studying the effects of studying on test scores, an example of sampling bias could be if only high-achieving students volunteer to participate in the study. This would bias the sample towards students who are already motivated and likely to perform well academically, potentially skewing the results and making them less representative of the entire student population.



TECHNIQUES IN EXPERIMENTAL PSYCHOLOGY

Generalizability the extent to which research findings obtained from a sample can be applied or generalized to a larger population.

- It reflects the degree of confidence researchers have in extending their conclusions beyond the specific individuals or cases studied.

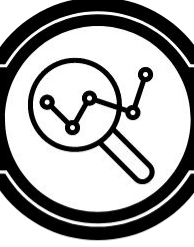


In the scenario of studying the effects of studying on test scores, generalizability would relate to how well the findings from the study can be applied to the larger population of students. If the sample used in the study is representative of the broader student population in terms of demographics, academic performance, and other relevant factors, then the results are more likely to be generalizable. However, if the sample is biased or limited in some way, such as only including high-achieving students, then the generalizability of the findings may be limited to that specific subgroup and may not accurately reflect the experiences of all students. Therefore, ensuring a diverse and representative sample is crucial for achieving generalizability in research.

STATISTICAL ANALYSIS

TECHNIQUES IN PSYCHOLOGY

ap psychology



STATISTICAL ANALYSIS TECHNIQUES IN PSYCHOLOGY

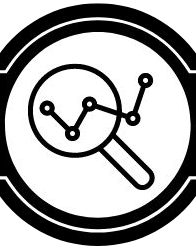
Statistics A large amount of data can be collected in research studies. Psychologists need to make sense of the data.

Statistics is a tool to turn data into information:

- Organize & describe in a meaningful way.
- Used to make predictions about a population of interest.



Psychology majors typically spend more time studying statistics and research methods than almost any other undergraduate major.



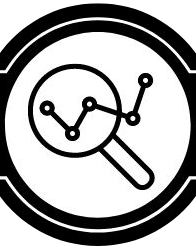
TECHNIQUES IN EXPERIMENTAL PSYCHOLOGY

Descriptive Statistics-Describe

Descriptive statistics refer to numerical measures used to summarize and describe the characteristics of a dataset.

These statistics help in organizing and presenting large amounts of data in a meaningful and concise way.

Inferential Statistics-Generalization



TECHNIQUES IN EXPERIMENTAL PSYCHOLOGY

Descriptive Statistics-Describe

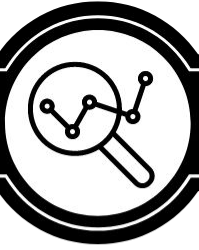
Descriptive statistics refer to numerical measures used to summarize and describe the characteristics of a dataset.

These statistics help in organizing and presenting large amounts of data in a meaningful and concise way.

Inferential Statistics-Generalization

Inferential statistics involves using data from a sample to make inferences or predictions about a larger population.

Allow researchers to draw conclusions and make generalizations about the population based on the sample data.



STATISTICAL ANALYSIS TECHNIQUES IN PSYCHOLOGY

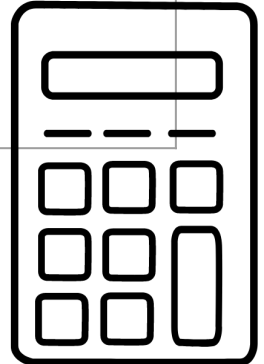
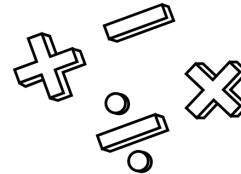
Measures of Central Tendency statistical tools used to describe the central or average value of a set of data.

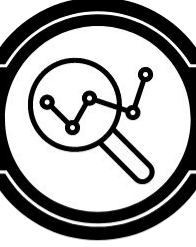
- They provide a single value that represents the "center" or typical value of a distribution.

Mean

Median

Mode





STATISTICAL ANALYSIS TECHNIQUES IN PSYCHOLOGY

Mean a measure of central tendency in statistics that represents the **average** value of a set of data.

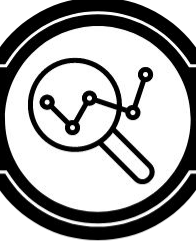
- It is calculated by adding up all the values in the data set and then dividing the sum by the total number of values.

10, 15, 20, 25, 30

To calculate the mean, add up all the numbers and then divide by the total count of numbers. For this dataset:

$$(10 + 15 + 20 + 25 + 30) / 5 = 20$$

So, the mean of this dataset is **20**



STATISTICAL ANALYSIS TECHNIQUES IN PSYCHOLOGY

Median a measure of central tendency in statistics that represents the middle value of a data set when the values are arranged in ascending or descending order.

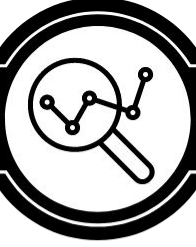
- To find the median, the data set is ordered, and the middle value is identified.
- If there is an even number of values, the median is calculated as the average of the two middle values.

15, 25, 30, 10, 20

To calculate the median, you first need to arrange the data points in ascending order.

10, 15, 20, 25, 30

Since there are five data points, the middle value would be the third number, which is 20. Therefore, the median is **20**.



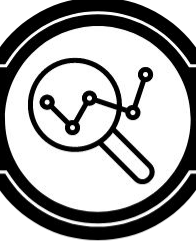
STATISTICAL ANALYSIS TECHNIQUES IN PSYCHOLOGY

Mode a measure of central tendency in statistics that represents the most frequently occurring value in a data set.

- A data set may have one mode (unimodal), multiple modes (multimodal), or no mode if all values occur with the same frequency.

10, 15, 20, 25, 30

In this case, each value appears only once, so there is no mode.



STATISTICAL ANALYSIS TECHNIQUES IN PSYCHOLOGY

Range represents the difference between the highest and lowest values in a data set.

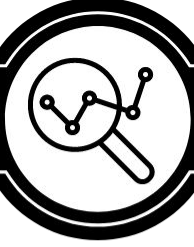
- To calculate the range, one subtracts the lowest value from the highest value.
- It provides a simple way to assess the spread or variability of the data by quantifying the distance between the extremes.

10, 15, 20, 25, 30

Subtract the smallest value from the largest value in the data set. In this case, the smallest value is 10 and the largest value is 30.

$$\begin{aligned}\text{Range} &= \text{Largest Value} - \text{Smallest Value} \\ \text{Range} &= 30 - 10 \\ \text{Range} &= 20\end{aligned}$$

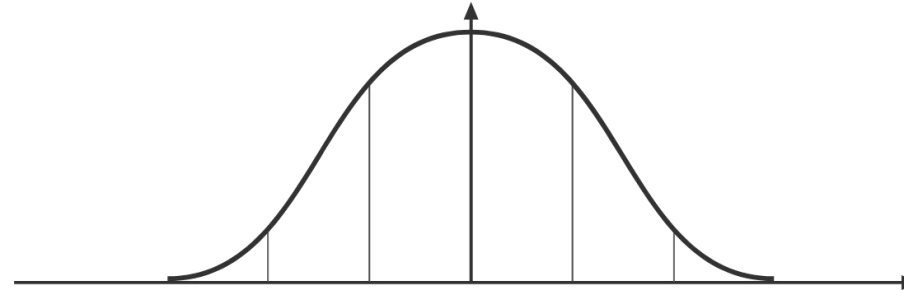
So, the range of the data set is **20**



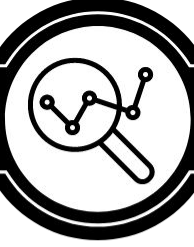
STATISTICAL ANALYSIS TECHNIQUES IN PSYCHOLOGY

Normal Curve or Bell Curve the majority of the data falls near the center, or mean, of the distribution, with progressively fewer values occurring further away from the mean in both directions.

Mean, Median, Mode



Symmetrical Distribution

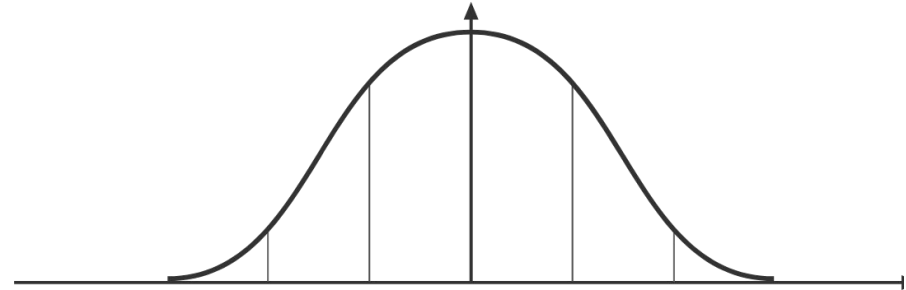


STATISTICAL ANALYSIS TECHNIQUES IN PSYCHOLOGY

Regression to the Mean is when extreme scores tend to get closer to the average when measured again. This happens because extreme scores are often due to temporary factors, not lasting characteristics.

- It's important in psychology to understand that extreme behaviors or performances may not be as consistent over time.

Mean, Median, Mode

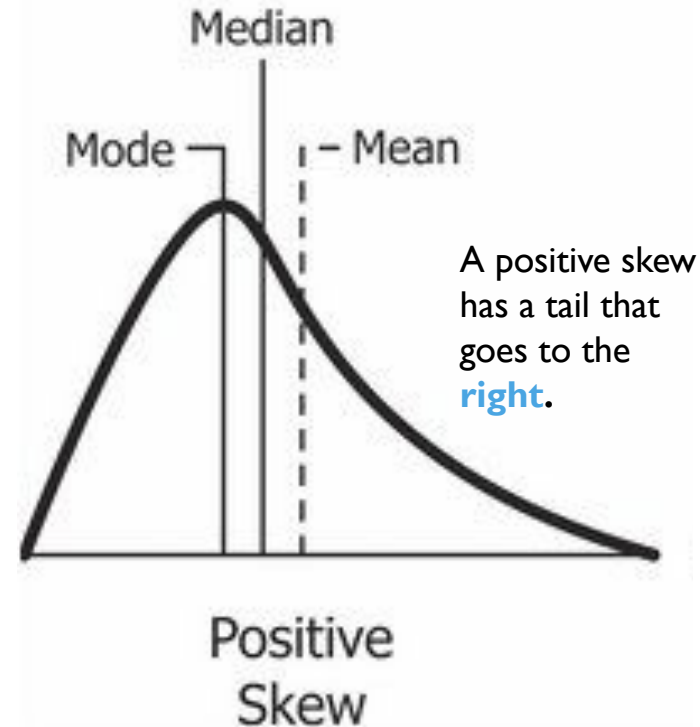


Symmetrical Distribution



STATISTICAL ANALYSIS TECHNIQUES IN PSYCHOLOGY

Positive Skew the majority of the data clusters on the left side, with the tail extending towards the right, suggesting the presence of outliers or unusually high values.

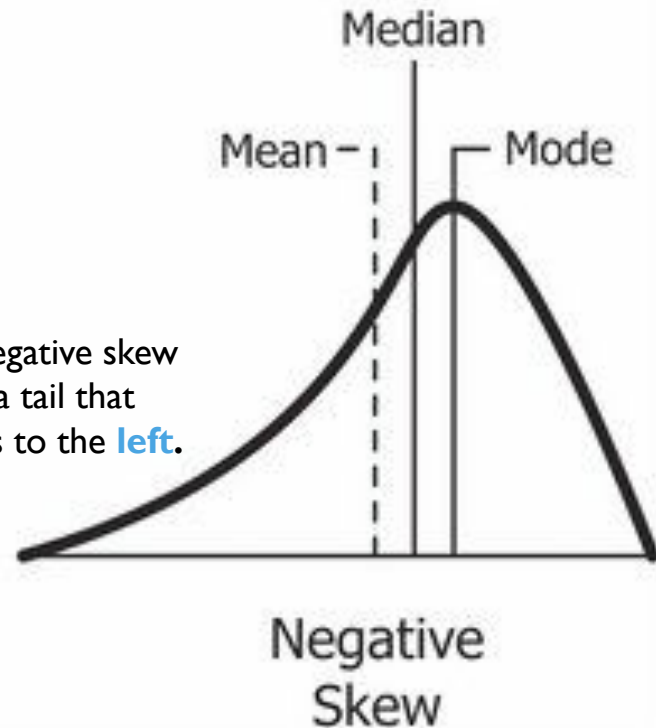


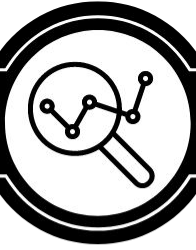


STATISTICAL ANALYSIS TECHNIQUES IN PSYCHOLOGY

Negative Skew the bulk of the data clusters on the right side, with the tail extending towards the left, suggesting the presence of outliers or exceptionally low values.

A negative skew has a tail that goes to the **left**.

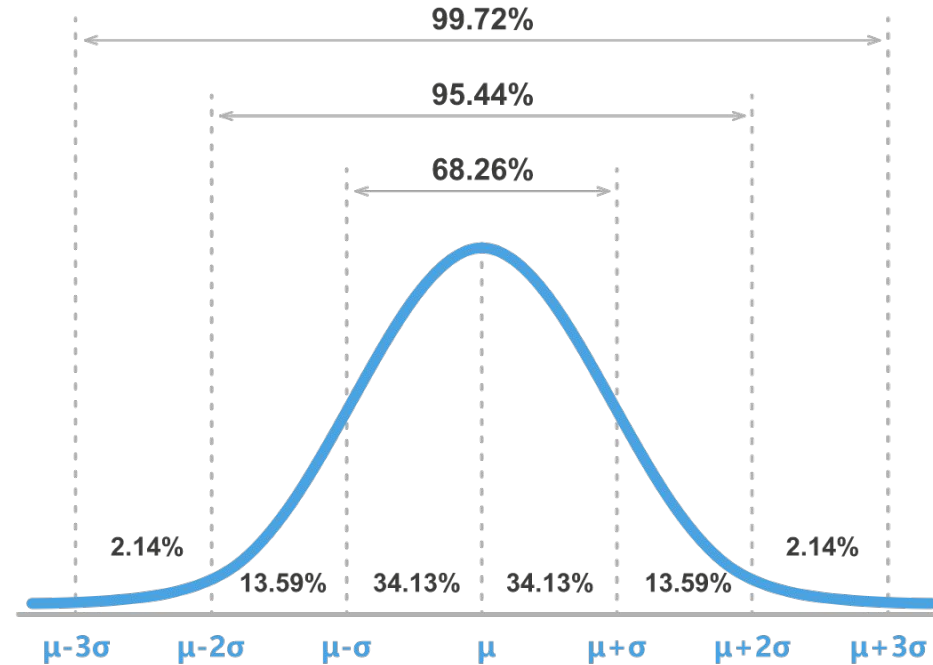




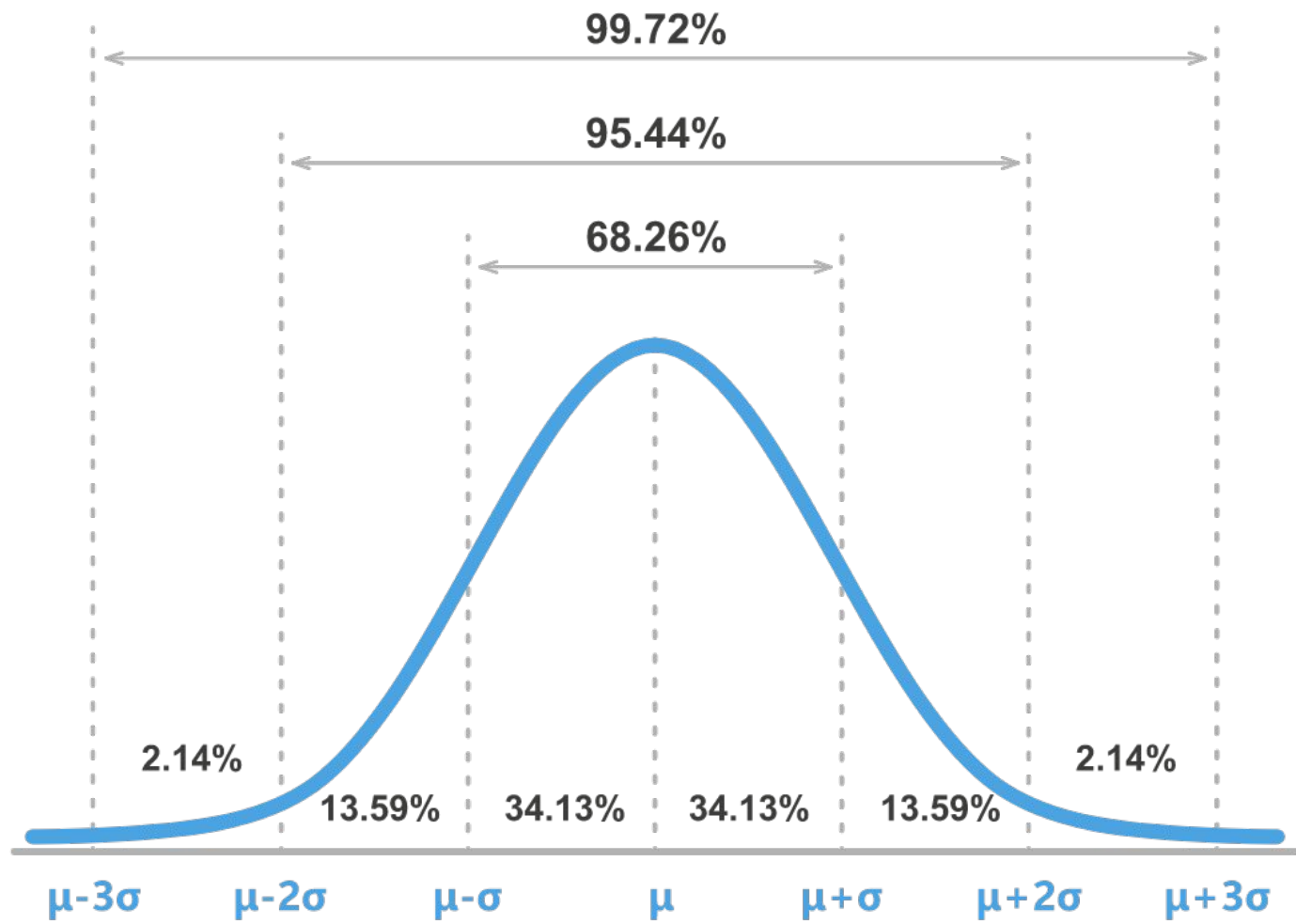
STATISTICAL ANALYSIS TECHNIQUES IN PSYCHOLOGY

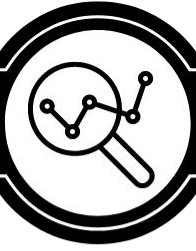
Standard Deviation a way to measure how spread out or close together numbers are in a group.

- Standard deviation measures how spread out the scores are from the average, or mean. If the standard deviation is small, it means most scores are close to the average. But if it's large, it means the scores are more spread out.



σ (sigma) stands in for the symbol for standard deviation

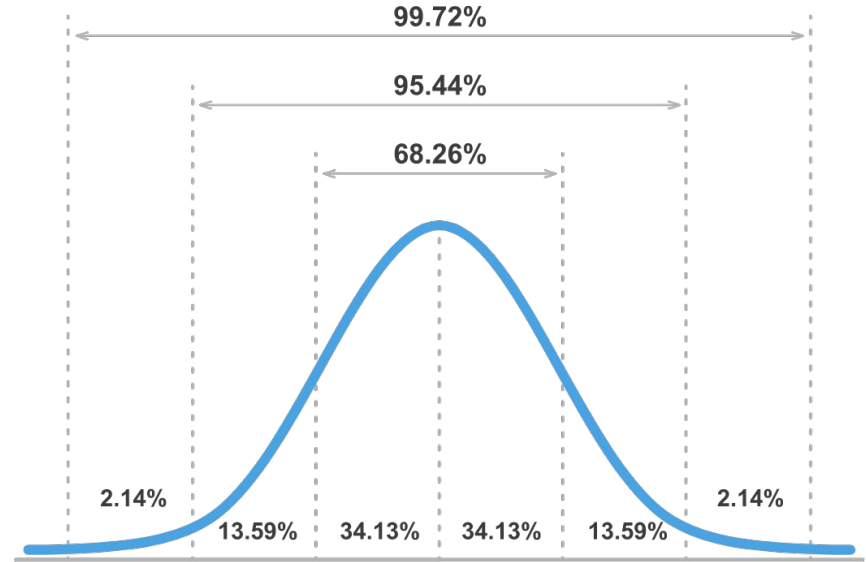




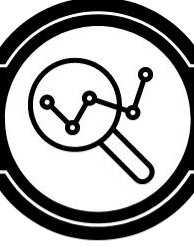
STATISTICAL ANALYSIS TECHNIQUES IN PSYCHOLOGY

Percentile Rank a statistical measure that indicates the percentage of scores in a distribution that are equal to or below a particular value.

- It is commonly used to compare an individual's score with those of a larger group or population.



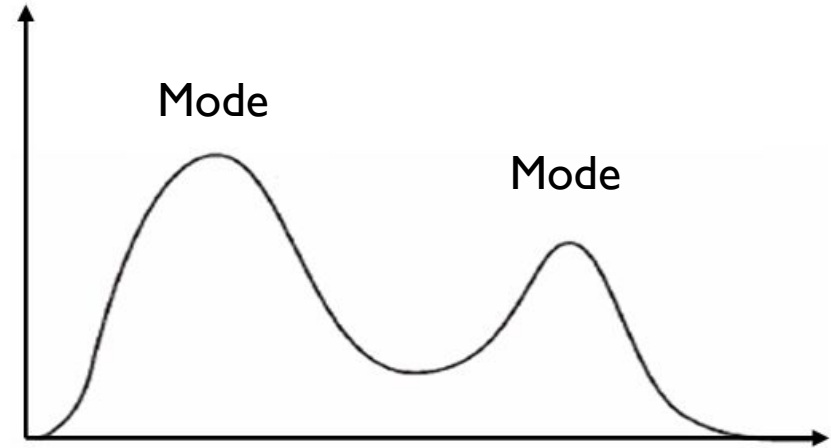
Percentile rank tells you where you stand compared to others in the group



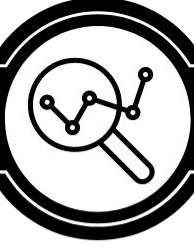
STATISTICAL ANALYSIS TECHNIQUES IN PSYCHOLOGY

Bimodal Distribution type of data distribution in which there are two distinct peaks or high points on a histogram or frequency distribution graph.

- This indicates that the data has two modes, or values that occur most frequently.
- It suggests that the data is not evenly distributed and may represent two distinct groups or phenomena within the dataset.



Bimodal distribution helps us understand when data doesn't just have one main group, but two distinct ones, showing us interesting patterns in the information we're looking at.



STATISTICAL ANALYSIS TECHNIQUES IN PSYCHOLOGY

Statistical Significance the likelihood that observed results in a research study are not due to chance.

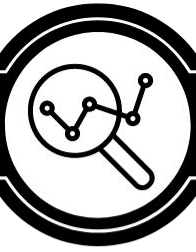
- Statistical significance is typically assessed using statistical tests such as t-tests is represented by a p-value.
- A p-value below a certain threshold (often set at 0.05) indicates that the observed results are unlikely to have occurred by chance alone and are therefore considered statistically significant.

P-Value < 0.05

**Statistically Significant
Difference**

P-Value > 0.05

**No Statistically
Significant Difference**

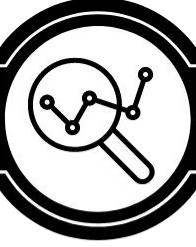


STATISTICAL ANALYSIS TECHNIQUES IN PSYCHOLOGY

Effect Sizes

- A large effect size indicates a substantial difference or relationship, suggesting that the independent variable has a considerable impact on the dependent variable
- A small effect size indicates a minimal difference or relationship, indicating that the independent variable has a limited effect on the dependent variable.

While statistical significance shows that an effect exists in a study, practical significance shows that the effect is large enough to be meaningful in the real world. Statistical significance is denoted by p values, whereas practical significance is represented by effect sizes.



STATISTICAL ANALYSIS TECHNIQUES IN PSYCHOLOGY

Meta Analysis the statistical analysis of multiple research studies on the same topic to draw overall conclusions.

- It combines data from various studies to increase the overall sample size and statistical power.



ETHICAL GUIDELINES IN

PSYCHOLOGICAL RESEARCH

ap psychology

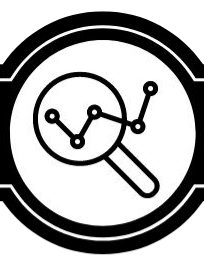


ETHICAL GUIDELINES IN PSYCHOLOGICAL RESEARCH

Institutional Review Boards (IRBs) are committees responsible for reviewing and approving research proposals to ensure that they meet ethical standards and protect the rights and welfare of research participants.

- IRBs are typically composed of a diverse group of professionals, including researchers, ethicists, and community members.





ETHICAL GUIDELINES IN PSYCHOLOGICAL RESEARCH

Proposal Submission: Researchers submit their research proposal to the IRB for review.

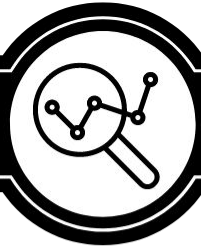
Initial Review: The IRB conducts an initial review to ensure the proposal meets ethical guidelines and regulations.

Ethical Assessment: The IRB evaluates the proposed research's potential risks and benefits to participants.

Feedback and Revision: If necessary, researchers may need to revise their proposal based on feedback from the IRB.

Final Approval: Once satisfied with the revisions, the IRB grants final approval for the research to proceed.

Ongoing Oversight: The IRB continues to monitor the research to ensure ongoing compliance with ethical standards.



ETHICAL GUIDELINES IN PSYCHOLOGICAL RESEARCH

Protect Participants from Harm

emphasizes the obligation of researchers to minimize risks and ensure the well-being of research participants throughout the study process.

- Researchers must carefully assess potential risks associated with the study procedures and take appropriate steps to mitigate or minimize these risks.





ETHICAL GUIDELINES IN PSYCHOLOGICAL RESEARCH

Protect Participants from Harm

emphasizes the obligation of researchers to minimize risks and ensure the well-being of research participants throughout the study process.

- Researchers must carefully assess potential risks associated with the study procedures and take appropriate steps to mitigate or minimize these risks.



The Stanford Prison Experiment conducted by Philip Zimbardo in 1971.

The study, which aimed to investigate the psychological effects of perceived power and authority in a simulated prison environment, quickly devolved into a situation of extreme psychological distress and abuse. Participants assigned to the roles of guards began exhibiting dehumanizing behavior towards those designated as prisoners, leading to the premature termination of the experiment after only six days. This study serves as a stark reminder of the ethical imperative to safeguard participants' well-being in research settings, emphasizing the critical need for ethical oversight and adherence to guidelines to prevent harm.



ETHICAL GUIDELINES IN PSYCHOLOGICAL RESEARCH

Informed Consent the process through which individuals voluntarily agree to participate in a research study after being provided with comprehensive information about the study's purpose, procedures, risks, benefits, and their rights as participants.

Informed Consent Example

Informed Consent Form

Title: [Title of the Study]

Principal Investigator: [Name of Principal Investigator]

Introduction: You are invited to participate in a research study conducted by [Principal Investigator's Name] from [Institution/University]. Before you decide whether to participate, it is important for you to understand why the research is being done and what your participation will involve. Please read the following information carefully and feel free to ask any questions you may have.

Purpose of the Study: The purpose of this study is to [briefly describe the research objectives].

Procedures: If you agree to participate, you will be asked to [describe the specific procedures involved in the study, including any tasks, interviews, surveys, or experiments]. The estimated time required for participation is approximately [duration].

Risks and Benefits: There are no anticipated risks associated with participating in this study beyond those encountered in daily life. However, you may benefit from contributing to scientific knowledge in the field of psychology.

Confidentiality: Your participation in this study will be kept confidential. Your responses will be anonymized and stored securely. Only the researchers involved in the study will have access to the data.

Voluntary Participation: Participation in this study is entirely voluntary. You have the right to withdraw from the study at any time without penalty or consequence.

Contact Information: If you have any questions about the study or your rights as a participant, please contact [Principal Investigator's Name] at [contact information].

Consent: By signing below, you acknowledge that you have read and understood the information provided in this form, and you voluntarily consent to participate in the study.

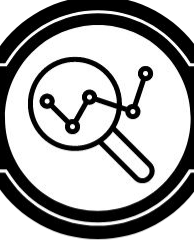
Participant's Name: _____

Participant's Signature: _____

Date: _____

For Researcher Use Only: Participant ID: _____

Date of Consent: _____



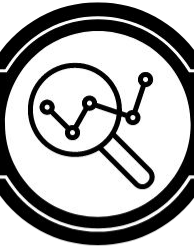
ETHICAL GUIDELINES IN PSYCHOLOGICAL RESEARCH

Informed Consent

- Researchers are required to obtain informed consent from participants before their involvement in the study, and participants have the right to withdraw from the study at any time without penalty.



The Tuskegee Syphilis Study is a stark example of the need for informed consent in research. In this study, conducted by the U.S. Public Health Service between 1932 and 1972, African American men with syphilis were enrolled without their informed consent and were not provided with proper treatment, even after penicillin became available as a cure. As a result, participants suffered severe health consequences, including blindness, paralysis, and death. This study highlighted the importance of ensuring that participants fully understand the purpose, procedures, risks, and benefits of research before consenting to participate. Informed consent serves to protect the rights and well-being of research participants and is essential for ethical research conduct.



ETHICAL GUIDELINES IN PSYCHOLOGICAL RESEARCH

Informed Assent similar to informed consent but specifically applies to research involving children or individuals who may have limited decision-making capacity, such as those with cognitive impairments or developmental disabilities.

Informed Assent Example

Informed Assent Form

Title: [Title of the Study]

Introduction: You are invited to participate in a research study conducted by [Principal Investigator's Name] from [Institution/University]. Before you decide whether to participate, it is important for you to understand why the research is being done and what your participation will involve. Please read the following information carefully and feel free to ask any questions you may have.

Purpose of the Study: The purpose of this study is to [briefly describe the research objectives].

Procedures: If you agree to participate, you will be asked to [describe the specific procedures involved in the study, including any tasks, interviews, surveys, or experiments]. The estimated time required for participation is approximately [duration].

Risks and Benefits: There are no anticipated risks associated with participating in this study beyond those encountered in daily life. However, you may benefit from contributing to scientific knowledge in the field of psychology.

Confidentiality: Your participation in this study will be kept confidential. Your responses will be anonymized and stored securely. Only the researchers involved in the study will have access to the data.

Voluntary Participation: Participation in this study is entirely voluntary. You have the right to withdraw from the study at any time without penalty or consequence.

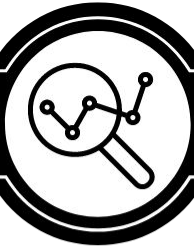
Contact Information: If you have any questions about the study or your rights as a participant, please contact [Principal Investigator's Name] at [contact information].

Assent: By signing below, you acknowledge that you have read and understood the information provided in this form and agree to participate in the study to the best of your ability.

Participant's Name: _____

Participant's Signature: _____

Date: _____



ETHICAL GUIDELINES IN PSYCHOLOGICAL RESEARCH

Informed Assent

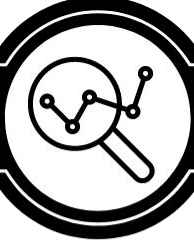
- Informed assent involves providing these individuals with age-appropriate or understandable information about the research study, including its purpose, procedures, risks, and benefits.

Informed Consent

Informed consent typically refers to the agreement given by adults who are legally able to make decisions for themselves.

Informed Assent

Informed assent applies to individuals who may not have the legal capacity to give full consent, such as minors or individuals with cognitive impairments. Informed assent is often accompanied by consent from a legally authorized representative, such as a parent or guardian, who provides permission for the individual to participate.



ETHICAL GUIDELINES IN PSYCHOLOGICAL RESEARCH

Confidentiality It requires researchers to handle sensitive data and personal information obtained during the study with the utmost discretion and confidentiality.

- This means that researchers must take measures to ensure that participants' identities and responses are kept confidential and protected from unauthorized access or disclosure.





ETHICAL GUIDELINES IN PSYCHOLOGICAL RESEARCH

Confidentiality It requires researchers to handle sensitive data and personal information obtained during the study with the utmost discretion and confidentiality.

- This means that researchers must take measures to ensure that participants' identities and responses are kept confidential and protected from unauthorized access or disclosure.



The importance of protecting individuals involved in case studies is the case of "**Genie**," a pseudonym given to a girl who suffered extreme neglect and abuse during her childhood. Genie's case attracted significant attention from researchers eager to study her development and language acquisition abilities. However, to protect her privacy and well-being, researchers took extensive measures to maintain her anonymity, using pseudonyms and ensuring that her identity was not disclosed to the public.

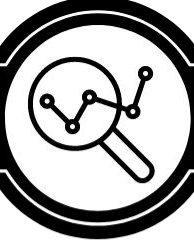


ETHICAL GUIDELINES IN PSYCHOLOGICAL RESEARCH

Deception In psychology, deception may involve misleading participants about the true purpose or nature of the study, the procedures involved, or the expected outcomes.

- While deception is sometimes necessary to achieve research objectives, it must be used sparingly and justified by compelling scientific or ethical reasons.





ETHICAL GUIDELINES IN PSYCHOLOGICAL RESEARCH

Deception In psychology, deception may involve misleading participants about the true purpose or nature of the study, the procedures involved, or the expected outcomes.

- While deception is sometimes necessary to achieve research objectives, it must be used sparingly and justified by compelling scientific or ethical reasons.



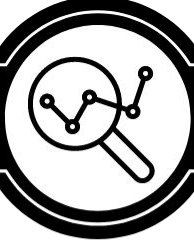
In the **Milgram study**, participants were led to believe that they were administering electric shocks to another person as part of a learning experiment. In reality, the "shocks" were not real, and the person receiving them was an actor pretending to be in pain. The study aimed to investigate obedience to authority figures, but the participants were deceived about the true nature of the experiment, potentially causing psychological distress. This example highlights the ethical dilemma of using deception in research and underscores the importance of carefully considering its necessity and potential impact on participants.



ETHICAL GUIDELINES IN PSYCHOLOGICAL RESEARCH

Confederates Confederates are individuals who are part of a research study but are actually working in collaboration with the researcher and are aware of the true purpose of the study.





ETHICAL GUIDELINES IN PSYCHOLOGICAL RESEARCH

Debriefing providing participants with comprehensive information about the true nature, purpose, and procedures of a research study immediately after their participation.

- Debriefing allows participants to reflect on their experience, ask questions, and provide feedback to researchers.





ETHICAL GUIDELINES IN PSYCHOLOGICAL RESEARCH

Debriefing providing participants with comprehensive information about the true nature, purpose, and procedures of a research study immediately after their participation.

- Debriefing allows participants to reflect on their experience, ask questions, and provide feedback to researchers.



The Little Albert experiment conducted by John B. Watson and Rosalie Rayner in 1920. In this study, a young boy named Albert was conditioned to fear a white rat by pairing its presence with a loud, startling noise. The experiment caused significant distress to Albert, who developed a fear not only of the rat but also of similar furry objects. The study lacked proper informed consent and debriefing procedures, as Albert's mother was not fully informed of the nature of the study, and Albert was not debriefed or treated for his fear after the experiment. This example underscores the importance of ethical considerations such as informed consent and debriefing in psychological research to prevent harm to participants.

Understanding Research Ethics: **PAINT-CD**

Remember with: "**P**articipants **A**lways **I**n **N**eed of Total **C**are & **D**ata protection"

<u>P</u> rotection from Harm: Minimizing risks, monitoring participant safety	<u>C</u> onfidentiality Protecting participant privacy and data security
<u>A</u> ssent (Informed): Minor participants understand and agree to participate	<u>D</u> ebriefing Post-study explanation and addressing concerns
<u>I</u> nformed Consent: Voluntary agreement after understanding study details	
<u>N</u> eed for IRB Approval: Research review board ensures ethical standards	

P A I N T C D



**"Participants Always In Need of Total
Care & Data protection"**



P
A
I
N
T

C
D



**"Participants Always In Need of Total
Care & Data protection"**